CHAPTER I
INTRODUCTION

1.1 Background of the Study

In the context of banking development, the 1980s saw a major structural change in financial sector policies, regulations and institutional developments. Government emphasized the role of the private sector for the investment in the financial sector. With the adoption of the financial sector liberalization by the government in 80's, the door opened for foreign banks to open Joint Venture Banks in Nepal. During two decades, Nepal witnessed tremendous increment in number of financial institutions. Nepalese banking system has now a wide geographic reach and institutional diversification.

Over the last three decades, the financial industry in developed as well as in developing countries has experienced major changes. The financial crisis of 2007-08 had negatively affected several economies around the world. Nepalese economy was mildly affected by global financial crisis. The effect was mild because the country's financial market was least integrated with the global financial market. The economic downturn in Europe and the US has negative repercussions on developing economies like Nepal. In order to avert domestic financial crisis, developing economies like Nepal strengthened its macroeconomic policies: the central bank increasingly tightened banks and financial institutions regulations. As the crisis was mainly due to reckless lending out by banks and financial institutions in unproductive sectors such as real estate and housing business there was difficulties in lending activities, together with new regulations on control over credit activities, have forced banks to potentially diversify income sources so as to proceed with other activities in search of new opportunities.

Non-interest income previously came from service charges from checks and trust or asset management services. Recently banking activities have expanded to include securities and insurance underwriting, brokerage and mutual funds services and other activities. Hence, with the expansion of non-traditional activities, banks can realize their moves into a wider market segment in addition to higher earnings from more diversified sources. Nonetheless, changes in the economy in those past years have

significantly impacted on the profitability and risk involving the banking sector. Deregulation and increased competition have led banks to expand their activities and to develop new lines of businesses beside their traditional interest activities.

Markowitz (1952) theory supported the theoretical case for the income diversification and the conventional wisdom of seeking not to put all eggs in the same basket. According to theory, diversification is the idea that investors allocate money to different types of investment alternatives. An income diversification refers to the relative proportions of non-interest income and interest income in the operating income of the banks. Banks have diversified their income sources by performing new activities, such as underwriting and trading securities, brokerage and investment banking and other activities, which generate non-interest income. The implications of such changes on bank performance, i.e. profitability and risk, have been broadly addressed in the literature but no consensus has been reached at this stage. Most studies find that non-interest activities are often associated with profitability gains but also higher risk because of their unstable nature.

Income source diversification is an important phenomenon, which shifts banks from its traditional, or loan-based activities to non-traditional activities. According to Huang and Chen (2006) non-interest income is an important diversification for the banks. A good number of reasons attract a commercial bank towards diversification. It is often viewed that diversification helps a bank to benefit from the economies of scale and scope, reduces unevenness in geographic reach, offers supermarket for its customers by offering variety of financial products and services. The growth of non-intermediation activities suggests that intermediation activities are becoming less important part of banking business strategies and therefore strategically, banks have shifted their product mix by diversifying into other income sources (Allen & Santomero, 2010).

Many of the research findings suggest that the decision to diversify income sources is desirable for both efficiency and risk management. Existing theories of financial intermediation imply increasing returns to scale linked to diversification. Similarly, securities and insurance underwriting, brokerage and mutual funds services and other activities can produce information that improves loan making. Thus, banks that engaged in variety of activities could enjoy the economies scopes, which boost

performance. As suggested by Saunders and Walters (1994) banks acquire customer information during the process of making loans that can facilitate efficient provision of other financial services.

Mercieca et al. (2007) classified the diversification in banking sector in three major dimensions: (a) financial products and services diversification, (b) geographic diversification, and (c) combination of business line and geographic diversification. An implication of income diversification of banks on its risk and return exposure has been addressed by various studies, predominantly in developed economies by (Lepetit et al., 2008; Meslier et al., 2014)

Teimet et al. (2011) found that banks tend to diversify by trading in real estate, stocks, bonds and private equity to raise their fee revenue, trading revenue and other types of non-interest income. Bank's income composition, in recent times, has considered the fee income as importantly relevant aspect for the nontraditional components in estimating their performance (Lozano-Vivas and Pasaiouras, 2010)

Drucker and Puri (2009) showed that diversified banks can gain economies of scope through spreading fixed costs over multiple products. Fees, commission and discount income, other operating income and the foreign exchange incomes are not correlated with the net interest income of the banks. Therefore, diversification on such income source makes the total operating income of the banks. Banks diversify their portfolios, operating in competitive environment, in order to be more stable and enhance their efficiency (Gurbuz et al., 2013)

According to Stiroh (2004) diversification, shifting into non-interest income, improves bank's returns and reduces volatility in returns thereof. Ekanayake and Wanamalie (2017) revealed that non-interest income activities have positive impact on the risk adjusted return on equity. It implied that marginal increase in non-interest income activities improves the shareholder's risk-return trade off. Chiorazzo (2008) found that diversification of income improves risk adjusted returns and this relationship is stronger for larger banks.

In the context of Nepal, Kattel (2014) evaluated the financial soundness of joint venture banks and private sectors banks in Nepal. The study showed that private owned banks are more financially sound than joint venture banks. Foreign bank's

entry enhances competition which forces banks to reduce cost, diversify products through innovation, and provide better services to customers to minimize risk and to retain them Panta and Bedari (2015). However, Rajbahak, et al. (2016) showed there was positive relationship between Herfindahl-Hirschman Index (HHI) loan and z-index indicating that higher the HHI loan, higher would be the financial stability. Hence, this study attempts to analyze the relationship between income diversification and risk adjusted performance of Nepalese commercial banks.

Nepali (2017) showed in his study, non-interest income (NONII), Herfindahl-Hirschman Index (HHI), equity to total assets ratio (EQUITY), loan to total assets ratio (LOAN), foreign ownership (FORGN), and total assets (SIZE) were income diversification variables. Whereas risk adjusted return on assets (RAROA) and risk adjusted return on equity (RAROE) as risk adjusted performance. The study revealed that non-interest income, foreign ownership and bank size are positively correlated to risk adjusted returns. It indicates that higher the non-interest income, foreign ownership and bigger the bank size, higher would be the risk adjusted returns. However, the study also revealed that equity to total assets ratio and loan to total assets ratio have negative relationship with the risk adjusted return.

Therefore, this study purpose to analyze the impact of income diversification on the risk-return trade-off of Nepalese commercial banks. More specifically it examines the effect of non-interest income (NONII), Herfindahl-Hirschman Index (HHI), equity, Loan, Foreign ownership (FORGN), and size over risk adjusted performance.

1.2 Statement of the Problems

The financial crisis of 2008 made all the market players learn and realize vital lesson that diversification of income sources and less reliance on traditional lending activities are important for the financial stability. After the economic liberalization of the country in 1980, the quantity of the Nepalese Financial sector has increased tremendously. It is evident that Nepalese banks are also involving more in noninterest income generating activities since the transition of economic centralization to economic liberalization and reformation.

Chiorazzo et al. (2008) found that income diversification increases risk-adjusted returns. The results provide econometric evidence consistent with studies on EU

banks, but do not support findings on the U.S. experience. The differences depend primarily on the relative importance of local banks and the relation is stronger at large banks. In addition, they also found that there are limits to diversification gains as banks get larger. Small banks can make gains from increasing non-interest income, but only when they have very little non-interest income share to start with. The source of non-interest income is less important than its level.

Whereas Nesrine and Adel (2014) advocates that diversification increases bank profitability on a risk-adjusted basis. The inconsistency in the above findings of various studies reveals that the evaluation of the banks' adjusted return is essential to understand the significance of diversification in the commercial banks of Nepal. In this connection, following research questions will be developed to deal with this study:

1. What is the relationship between income diversification and risk adjusted performance of the Nepalese commercial banks?

2. What is the impact of non-interest income (NONII), Herfindahl-Hirschman Index (HHI), equity, Loan, Foreign ownership (FORGN), and size on Risk Adjusted-Return on Assets (RAROA) of the Nepalese commercial banks?

3. What is the impact of non-interest income (NONII), Herfindahl-Hirschman Index (HHI), equity, Loan, Foreign ownership (FORGN), and size on Risk Adjusted-Return on Equity (RAROE) of the Nepalese commercial banks?

1.3 Purpose of the Study

Theoretically, we all know that diversification can improve the risk-return trade-off. Here this study empirically examines the impact of income diversification on risk adjusted performance of Nepalese commercial banks. However, the specific objectives will be as follows:

1. To analyse the relationship between income diversification variables and risk adjusted performance.

2. To analyse the impact of non-interest income (NONII), Herfindahl-Hirschman Index (HHI), equity, Loan, Foreign ownership (FORGN), and size on Risk Adjusted-Return on Assets (RAROA) of the Nepalese commercial banks.

3. To analyse the impact of non-interest income (NONII), Herfindahl-Hirschman Index (HHI), equity, Loan, Foreign ownership (FORGN), and size on Risk Adjusted-Return on Equity (RAROE) of the Nepalese commercial banks.

1.4 Significance of the Study

Apart from aiming to gain knowledge, research itself adds new to the existing literature. The significance of this study will lies mainly in filling a research gap on the study of income diversification and risk-return trade off in Nepalese commercial banks.

Through the literature of review, it has been found that many researches have been conducted in this field in the context of developed nations but a very few research have been conducted on the analysis and impact of the non-interest income in the context of Nepalese commercial banks. This is expected that this study provides some of the present issues, latest information and data regarding impact of non-interest income which may help the bankers, professional, readers and related parties interested their in.

This study will be important for banking and financial institutions, researchers, scholars, investors, students, government and many other parties related to the area of study. Finally, this study will be helpful for other researchers as a source of reference and as a stepping stone for those who want to make further study on the area afterwards.

1.5 Limitations of the Study

The main limitations of the study are as follows:

1. The study only analyses the impact of income diversification on risk adjusted performance (i.e. RAROA and RAROE) in Nepalese commercial banks. It doesn't consider the segregated effect of non-interest income sources on the performance of banks.

2. This study focuses only 20 banks, among 28 total commercial banks.

3. The study has been conducted using secondary data only. The validity of the secondary data totally depends upon the reliability of the banking and financial statistics reports and annual reports of the banks.

4. Limited scholarly works on the subject is available to the researcher.

5. This research has been conducted only by getting 7 years data of 20 commercial banks in Nepal. Hence, it cannot be generalized to whole banking industry.

1.6 Chapter Plan

Considering the objectives in mind, the study has been planned into the following five chapters.

Chapter I: Introduction

Introduction chapter includes background of the study, statement of the problems, objectives of the study, significance of the study, limitation of the study and organization of the study.

Chapter II: Literature Review

This chapter includes the relevant previous writing and studies to find the existing gap; review of textbook, dissertation, theoretical framework, hypothesis and research gap.

Chapter III: Methodology

This chapter contains research design, population and sample size, sources of data, data collection procedure, tools used for analysis and regression model.

Chapter IV: Results

This chapter analyzes various data gathered and tries to find out relationship between various factors identified for the research and present the same with the help of diagrams. It further includes the interpretation of finding.

Chapter V: Conclusions

This chapter includes the summary, conclusion and implication of the study and recommendation for further research.

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CHAPTER II
LITERATURE REVIEW

The review of literature is a very important part of the research. Any research is based on the past knowledge and experience. This chapter highlights upon the existing literature. For this, several books, dissertation, reports, handouts and journal articles published in journals and newspapers are reviewed. The objective of this chapter is to create theoretical framework and make strong support to the concept for understanding this study.

2.1 Conceptual Review

2.1.1 Concept of Income Diversification

Diversification is a technique that reduces risk by allocating investments among various financial instruments, industries, and other categories. It aims to maximize returns by investing in different areas that would each react differently to the same event.

Banks and financial institutions, in all over the world, are transcending and diversifying their traditional and normal line of operations in response to the reformation of economic and financial sectors. The modern banking practices have a lot to do with non-traditional banking activities. Therefore, an income diversification, in banking, refers to increasing share of fees, net trading profits and other non-interest incomes within net operating income of bank. In banking, diversification is done functionally by combining conglomerate activities such as, commercial banking, insurance, securities trading and other financial services (Baele et al., 2007).

The portfolio theory of Markowitz (1952) points out that diversification can decrease risk when individual assets are not fully correlated. The combination of banking, insurance and securities may lead to a more stable profit stream, since the revenues stemming from different products in a conglomerate organization are usually imperfectly correlated. If activities that generate non-interest income are uncorrelated or at least imperfectly correlated with those that produce interest income, diversification should stabilize operating income and give rise to a more stable stream of profits. Ekanayake and Wanamalie (2017) referred, while banks' net interest

margins are highly dependent on interest-rate movements and economic cycles, fee income provides diversification and greater stability for bank profits. If that is correct, it then follows that mixing interest and non-interest income will reduce the volatility of earnings.

Non-interest income effectively captures all the income stream that functionally diversified bank or conglomerate bank generate by providing broad array of financial services ranging from underwriting and distributing securities, underwriting and distributing insurance policies, selling mutual funds to providing payments and cash related services. Saunders and Walters (1994) study explained from the profitability dimensions, the question is whether or not the benefits of conglomerate exceed the costs. First the formation of financial conglomerate would be beneficial if there are positive cost/or revenue effects from combining various financial service activities. Revenues would be improved if income generating capacity is enhanced and operating cost would be lower to specialized banks if integration lead to operational synergies e.g. through economies of scope. Sharing of input such as labor, technology and information across multiple outputs constitutes the major source of such potential cost saving. Second bank possess information from their lending relations may facilitate efficient provision of other financial services and similarly information acquired through financial services including securities and insurance underwriting can improve loan origination and credit risk management. Thus, financial conglomerates could enjoy economies of information that boost performance and market valuations. Third, the potential for functional diversification may improve corporate governance through the working of the takeover market (Saunders & Walters, 1994)

Theoretically, income diversification can be viewed in the resource based view theory and risk reduction hypothesis. The diversification decision may relate to efficiency and risk management of a bank, where joint production of a wide range of financial services should increase a bank's efficiency, as the results of increasing bank's economies of scale (Klein & Saidenberg, 2010).

Having more resource with good production efficiency should lead bank to better performance. Meanwhile, in risk reduction hypothesis perspective, diversification leads to less risk with manageable income. The diversification may diminish if there

is integration among financial markets. For instance, if lending market, mortgage market, capital market, and money market are integrated, there is no extra risk-adjusted return for banks in doing diversification. There are few studies have been done on the relationship between income diversification and bank performance, yet, the conclusion is still inconclusive. For example, there is Lee et al. (2014) who conducted research in 29 Asia Pacific, Europe, and US banks covering the period of 1995 to 2009, found that income diversification can give better return in less developed countries due to less integrated financial markets. They also use resource based view to explain that income diversification implies better resource and competitiveness, and it leads to better performance.

Gurbuz et al. (2013) found that income diversification sturdily increases the risk-adjusted financial performance of the deposit banks in Turkey. Banks able to diversify their income sources by doing new activities such as brokerage, trading securities, and investment banking. If the bank diversifies their activities, they will able to increase their profitability and even their stability.

In the study of Meslier et al. (2014) the result found out that a shift towards non-interest income will increase the bank's profitability and risk-adjusted profits. Meanwhile Chiorazzo et al. (2008) study the linked between non-interest revenues and profitability by using annual data from Italian banks and other EU banks. They found that bank gains better performance if they diversify their income source onto fee-based activities such as investment banking. However, when they used US banks data, they found that there is no significant role of income diversification on bank performance. It is noteworthy that income diversification may harm bank's performance because of its risk exposure.

Lozano-Vivas and Pasiouras (2011) found out that income diversification raises the banks risk due to the market structure of fee-based activities. Giving attention and resource to not-main income generation might harm the operation of bank, and leads to lower return. In short, if bank performs more on non-traditional bank activities, ceteris paribus, proportion of non-interest income will increase while proportion of net interest income will decrease in bank's income source portfolio. As a result, income diversification effect will change accordingly. However, the strategy in diversifying income may face more risk exposures. They have found that income

diversification may increase banks' risk due to higher operating leverage and uncertain income generation.

On the other side, Saunders (1994) argued that agency costs may arise due to the complexity of the conglomerate organizations. Diversification of activities in conglomerate structure could intensify agency problems, between insiders and outsiders, but also between the divisions of conglomerate and between the conglomerate firm and its customers in the form of conflict of interest. Managers may pursue diversification to enhance their ability to extract private benefits, even when diversification would lower the market value and other bank performance.

Theoretically it is unclear whether or not the potential benefits of functional diversification are larger than the costs. Similar disagreement exists in the literature on conglomeration in non-financial corporations Berger and Ofek (1995). They also reported that, although industry diversification reduces value on average, relatedness mitigates the value loss. Arguably, the activities undertaken in financial conglomerates have a higher degree of similarity than in most other industries. In an event study of European financial mergers, Cybo-Ottone and Murgia (2000) reported that abnormal returns are higher in cross-product deals than in horizontal bank mergers. On the efficiency side Vander Vennet (2002) finds that financial conglomerates in Europe are more cost efficient than specialized banks.

Some experts of diversification argued that banks are typically highly levered firms and diversification across sectors reduces their chance of costly financial distress. Similarly, conventional view is that greater competition in the banking industry has increased the need for banks to diversify as lower profits leave fewer margins for error, so diversification provides necessary reduction in risk. Templeton and Serveriens (1992) in their study, examined that diversification is associated with lower variance of shareholder returns.

As pointed by Mester (1992) mixing of traditional banking activities of originating and monitoring loans with non-traditional activities of loan selling and buying products leads to diseconomies of scope and some economies of scale. Thus, it can be demonstrate that these studies have found that combining traditional and non-traditional bank activities have the potential to reduce risk of bank. It is viewed that,

non-interest earnings is more stable than interest income and that increasing share of fee-based activities in a traditional portfolio of banking products reduce overall earnings volatility via diversification effects. Nonetheless, some of prior works on non-interest income versus interest income and bank risk have represented several arguments against this conventional wisdom.

According to the study conducted by DeYoung and Karin (2001) when an average bank tilt its product mix toward fee-based activities and away from traditional lending activities, the bank's revenue volatility, its degree of operating and financial leverage, and the level of its earnings increase.

Diversification in banking can take on different dimensions. While there are a variety of studies that analyze diversification within loan portfolio, diversification of income sources, more specifically interest and non-interest income, has attracted increasing attention in academic research. Generally, it is believed that diversification of income sources should reduce total risk, as diversification should stabilize operating income if income streams are negatively or imperfectly correlated. While this argument is unclear from a traditional point of view, DeYoung and Ronald (2001) provided three reasons why non-interest income may increase volatility. First, revenues from fee-based activities might be more volatile than interest income because the customer-bank relationship is stronger in the traditional lending business, i.e. for many of the new fee-based activities it is easier for customers to switch to another bank. Second, expanding into fee-based services can considerably increase fixed costs (e.g. by investments in technology and human resources) whereas, if a lending relationship is already established, the only cost of an additional loan are the bank's interest expenses. Third, in contrast to the lending business, fee-based activities require less regulatory capital, which suggests a higher degree of financial leverage and therefore leads to a higher earnings volatility.

Indeed, DeYoung and Ronald (2001) and Stiroh (2004) found empirical evidence that reliance on non-interest activities increases the volatility of large U.S. banks. In general, only a few papers identify empirical evidence that combined lending and non-interest activities cause diversification benefits and therefore lead to risk reduction.

By contrast, there are some studies (mainly for the US banking market) that have shown a positive and significant influence of diversification through non-interest income on earnings volatility. Stiroh (2004) analyzed the potential benefit of income diversification for U.S. banks. Since the growth of net interest and net non-interest income in the period 1984-2001 is increasingly correlated, he concluded that the diversification benefits decreased during the period in question. Furthermore, he showed that at the bank level risk-adjusted returns are negatively associated with non-interest income shares.

DeYoung and Rice (2004) suggested that, there are differences between the European and the U.S. banking sector. They argued that universal banking has been the historic norm in many European banking systems, possibly based on experience as European banks are better informed as to how to exploit the diversification benefit of fee-based activities. Smith et al. (2003) likewise empirically confirmed that European banks are able to seek diversification benefits through combining interest and non-interest income activities. In the case of European banks, the authors found that non-interest income is indeed more volatile than interest income but, in contrast to U.S. studies, there were negative correlations between these two income streams. Hence, they concluded that non-interest activities potentially stabilized bank earnings, a result that was also confirmed by Davis and Tuori (2000) for a number of European banks, including some in Germany.

Godard et al. (2008) found that diversification through increase in the income share of non-interest income in the operating income of the banks has the effect of volatility reduction. According to Ismail et al. (2014) there is a positive impact of income diversification on the performance of Pakistani banks. Pennathur et al. (2012) found that fee-based income significantly reduces risk for public sector banks. The study also revealed that diversification can be a source of enhancing revenue however, banks must consider risk and return trade off.

Carbo-Valverde and Fernandez (2007) showed that in European banking, market power tends to increase as banks diversify into non-traditional activities and the performance of banks improves thereof. However, Delpachitra and Lester (2013) found that non-interest income and revenue diversification have negative effect on the

profitability of Australian banks. In addition, the study revealed that over-reliance on the non-interest incomes does not improve the bank's profitability and risk of default.

According to Mndene (2015) diversification is better for the performance measured by risk adjusted return on equity of the bank which focuses on non-interest income activities. However, small banks, domestic and public banks are highly affected especially in risk adjusted return on equity. Muneer et al. (2016) found that there is a positive effect of income diversification on the performance of commercial banks; however, there is no significant effect of income diversification on the performance of Islamic banks in Pakistan. Demsetz and Strahan (1997) revealed that there is positive relation between bank size and income diversification. The study also found that income diversification has negative impact on the risk reduction.

Banks expand more into non-traditional activities, income source diversification, if they experience higher credit losses in order to better match the risk return trade off in the study of Nguyen et al. (2012). Acharya et al. (2004) found empirical evidence that banks with less competition in industry are not able to ripe the benefits of income diversification but the returns of these banks have improved marginally as a result of diversification. Banks can get economic scope with higher profitability through diversification (Li, 2003).

Reichert et al. (2008) revealed that there are potential gains and risk reduction when diversification into the non-bank commercial and industrial sector is permitted. Barthe et al. (2004) revealed that non-traditional activities-income diversification is positively associated with bank stability.

Rogers and Sinkey (1999) Found that US banks heavily engaging in nontraditional activities display less risk and concluded that they are using non-traditional activities to strengthen their franchise values. There is negative relationship between bank risk and non-interest income generating activities which implies that non-interest activities reduce bank risk via diversification of earnings. Hang et al. (2017) found that deposit ratio, loan ratio and size have negative impact on the risk adjusted performance. The study further concluded that the diversification of income is not beneficial for commercial banks in Vietnam.

In the context of Nepal, Kattel (2014) evaluated the financial soundness of joint venture banks and private sectors banks in Nepal. The study showed that private owned banks are more financially sound than joint venture banks. Foreign bank's entry enhances competition which forces banks to reduce cost, diversify products through innovation, and provide better services to customers to minimize risk and to retain them (Panta & Bedari, 2015)

According to Gajurel and Pradhan (2012) market for interest based income is more competitive than the market of fee based income. The study also revealed that equity capital has negative effect on revenue generation in Nepalese banking industry. It means that banks with higher equity capital base are likely to generate lower revenue than banks with lower equity capital base. Barthe et al. (2004)   found that the financial health of the joint venture banks is better than other banks in Nepal.

While most previous work on bank diversification was dedicated to U.S. banks, European banks and other banks of developed countries there are only a few studies that analyze the relationship between the changing structure of bank income and risk and return trade-off of the emerging country like Nepal and its impact on banking industry. In order to contribute to this area of banking literature, we analyze the effect of banks' fee generating activities on their risk-return profiles, with a special emphasis on banks' interest margins. Our database consists of a micro panel of supervisory balance sheet data, profit and loss statement and information on banks' between 2069/70 to 2075/76. We focus on the problem of in two ways: first, we use a fixed effects panel with lagged variables to explain banks' return and risk-adjusted return and, second, we apply the two-stage least squares estimator to explain the volatility of bank returns. Our reasoning for this methodological approach is described in detail in section 4.

2.2 Empirical Review

2.2.1 Review of Books

The portfolio selection model was, for the first time, formally proposed by Harry Markowitz in 1952 through his study entitled "portfolio Selection". Harry M. Markowitz is credited with introducing new concepts of risk measurement and their application to the selection of portfolios.   Markowitz (1952) points out that

diversification can decrease risk when individual assets are not fully correlated. He was started with an idea of risk aversions of average investors and their desire to maximize the expected return with the least risk. Markowitz model is thus a theoretical framework for analysis of risk and return and their inter-relationships. He used the statistical analysis for measurement of risk and mathematical programming for selection of assets in a portfolio in an efficient manner. Research framework led to the concept of efficient portfolios. An efficient portfolio is expected to yield the highest return for a given level of risk or lowest risk for a given level of return. Markowitz generated a number of portfolios within a given amount of money or wealth and given preferences of investors for risk and return.

2.2.2 Review of Journal Articles

Brahmana and Kontesa (2017) in their study using annual financial information from Malaysian banks over the period of 2005-2015, they found the diversification effect on bank's performance. Specifically, they tested the link between non-interest income and risk-adjusted performance. Their fixed effect panel regression results showed that income diversification increases bank's performance confirming risk reduction hypothesis and resource-based view theory. In their view, the less integrated financial market in Malaysia gives advantage for Malaysian banks to achieve better diversification gains. Moreover, the surging of Islamic banking might play important role to the performance of income diversification.

Ekanayake and Wanamalie (2017) study examined the impact of bank income source diversification on risk-return trade off, of commercial banks of Sri Lanka. Considering eleven commercial banks for the period from 2002 to 2015, the paper examined non-interest income and its components against the risk-adjusted returns to explore the relationships among them. Results confirmed that non-interest income is riskier than interest income, but offers potential diversification benefits to shareholders. This is followed by the negative correlation between the interest income and non-interest income. Moreover, risk adjusted return on equity is positively affected by higher non-interest income activities, indicating that a marginal increase in non-interest income improves the shareholders' risk return trade off. However, interest income, which has a significant negative relationship with risk-adjusted return on equity indicate that increase in interest income has been associated with worsening

the risk return tradeoff for shareholders. Further, comparative analysis of non-interest income and risk-adjusted returns shows that foreign exchange income and other income categories have major influence on the shareholders risk and return. However, fee based income has no explanatory power over risk adjusted return. The findings of the study have important policy implications on the regulators in the implementation of capital adequacy requirements which adjust with the bank's risk exposure.

Meslier et al. (2013) examined the impact of bank revenue diversification on the performance of banks in an emerging economy. Using a unique dataset with detailed information on noninterest income, their findings showed that, conversely to studies on Western economies, a shift towards non-interest activities increases bank profits and risk-adjusted profits particularly when they were more involved in trading in government securities. Their results also indicated that foreign banks benefit more from such a shift than their domestic counterparts. Moreover, they accounted for the institutional and regulatory environment advocating loans to SMEs and found that higher involvement in non-interest activities is only beneficial for banks with low exposures to SMEs. Their findings have important policy implications in terms of achieving optimal diversification and lower risk exposure, which might conflict with policies aiming to promote SME lending.

Winton (1999) in his article: Should lenders diversify, as suggested by the financial intermediation literature, or specialize, as suggested by the corporate finance literature? He model a financial institution's ("bank's") choice between these two strategies in a setting where bank failure is costly and loan monitoring adds value. All else equal, diversification across loan sectors helps most when loans have moderate exposure to sector downturns ("downside") and the bank's monitoring incentives are weak; when loans have low downside, diversification has little benefit, and when loans have sufficiently high downside, diversification may actually increase the bank's chance of failure. Also, it is likely that the bank's monitoring effectiveness is lower in new sectors; in this case, diversification lowers average returns on monitored loans, is less likely to improve monitoring incentives, and is more likely to increase the bank's chance of failure. Diversified banks may sometimes need more equity capital than specialized banks, and increased competition can make diversification either more or less attractive. These results motivate actual institutions' behavior and

performance in a number of cases. Key implications for regulators are that an institution's credit risk depends on its monitoring incentives as much as on its diversification, and that diversification per se is no guarantee of reduced risk of failure.

Stiroh (2004) found U.S. banking industry was steadily increasing its reliance on nontraditional business activities that generate fee income, trading revenue, and other types of noninterest income. This paper assessed potential diversification benefits from this shift. At the aggregate level, declining volatility of net operating revenue reflects reduced volatility of net interest income, rather than diversification benefits from noninterest income, which is quite volatile and has becomed more correlated with net interest income. At the bank level, growth rates of net interest income and noninterest income had also become more correlated in those years. Finally, greater reliance on noninterest income, particularly trading revenue, is associated with higher risk and lower risk-adjusted profits. These results suggested little obvious diversification benefit from the ongoing shift toward noninterest income.

In the study of Acharya et al. (2004): Should Bank Be Diversified? Empirically centered on the effect of focus (specialization) vs. diversification on the return and the risk of banks using data from 105 Italian banks over the period 1993–1999. Specifically, they analyzed the tradeoffs between (loan portfolio) focus and diversification using data that is able to identify loan exposures to different industries, and to different sectors, on a bank-by-bank basis. Their results were consistent with a theory that predicts a deterioration in the effectiveness of bank monitoring at high levels of risk and upon lending expansion into newer or competitive industries. The most important finding is that both industrial and sectoral loan diversification reduce bank return while endogenously producing riskier loans for high risk banks in our sample. For low risk banks, these forms of diversification either produce an inefficient risk–return tradeoff or produce only a marginal improvement. A robust result that emerges from their empirical findings is that diversification of bank assets is not guaranteed to produce superior performance and/or greater safety for banks.

Huang and Chen (2006), non-interest incomes have become an increasingly important part of banks' operating incomes. Most banks regard non-interest incomes as one of the stable sources of bank revenues. In general, the industry believes increasing the

ratio of non-interest incomes to operating incomes can not only improve profitability but also reduce the risk to the bank. However, DeYoung and Roland (2001) have stated increasing fee-based activities increases the volatility of bank revenues and earnings. The empirical analysis of their findings investigated whether the reliance on different sources of non-interest incomes will affect bank efficiency. Their study employ the data envelopment approach (DEA) to calculate the cost efficiency of Taiwan domestic commercial banks from 1992 to 2004. The findings were that the banks either with relatively higher or lower ratios of non-interest incomes to operating incomes perform more cost-efficiently during the examination periods. The relative optimal level of non-interest incomes existed in the Taiwan banking industry.

Goddard et al. (2008) found revenue from non-interest sources increased significantly in those years in US credit unions. They investigated the impact of revenue diversification on financial performance for the period 1993–2004. The impact of a change in strategy that alters the share of noninterest income is decomposed into a direct exposure effect, reflecting the difference between interest and non-interest bearing activities, and an indirect exposure effect which reflects the effect of the institution's own degree of diversification. On both risk-adjusted and unadjusted returns measures, a positive direct exposure effect is outweighed by a negative indirect exposure effect for all but the largest credit unions. This may imply that similar diversification strategies are not appropriate for large and small credit unions. Small credit unions should eschew diversification and continue to operate as simple savings and loan institutions, while large credit unions should be encouraged to exploit new product opportunities around their core expertise

Gamra and Plihon (2008) shaped by structural forces of change, banking in emerging markets had experienced a decline in its traditional activities, leading banks to diversify into new business strategies. This paper examined whether the observed shift into non-interest based activities improves financial performance. Using a sample of 714 banks across 14 East-Asian and Latin-American countries over the post 1997-crisis changing structure, they found that diversification gains are more than offset by the cost of increased exposure to the non-interest income, specifically by the trading income volatility. But this diversification performance's effect is found to be no linear with risk, and significantly not uniform among banks and across business

lines. An implication of these findings is that banking institutions can reap diversification benefits as long as they well-studied it depending on their specific characteristics, competences and risk levels, and as they choose the right niche.

Busch and Kick (2009) this study analyzed the determinants of non-interest income and its impact on financial performance and the risk profile of German banks between 1995 and 2007. They found empirical evidence that for all German universal banks risk-adjusted returns on equity and total assets are positively affected by higher fee income activities. Additionally, for commercial banks they show that a strong engagement in fee-generating activities goes along with higher risk. In order to analyze possible cross-subsidization effects between interest and fee business they also examined how banks' expansion in fee-based services has affected their interest margin. For savings and commercial banks they found that institutions with a strong focus on fee business charge lower interest margins when credit risk is controlled.

2.2.3 Review of Thesis

Nepali (2017) who conducted research on the topic "Income Diversifications and Bank Risk-Return Trade-off in the Nepalese Commercial Banks" concluded that Income diversification is creating pool of modern banking revenue sources along with the traditional banking activities for sound financial performance of the banks. Income diversification in banking sector refers to increasing share of fees, net trading profits, exchange incomes, commission and charges, and other non-interest income within net operating income of a bank. An important source of diversification for the banks is considered as non-interest incomes.

The major conclusion in his study is that non-interest income, income diversification, equity ratio and foreign ownership are the major determinants of risk return trade off in Nepalese commercial banks. The positive and significant impact of noninterest income on the risk adjusted performance ratios indicates that the Nepalese commercial banks have to focus on generating noninterest income through modern banking activities so as to achieve trade-off between the risk and return in their performance. The income diversification measurement proxy HHI shows that Nepalese commercial banks are in the process of diversification in their income sources. There is positive impact of diversification on the risk adjusted performance

of the Nepalese commercial banks. The banks focused on modern and innovative banking services are generating non-interest incomes and having better trade-off in their risk and return. The result also shows that the highly levered banks have better risk adjusted performance than other banks which encourages banks to use more of debt in financing assets. The result also finds that loan ratio has negative impact on the risk adjusted performance of the commercial banks. Foreign banks have better income diversification practices in comparison to domestically owned banks. Moreover, the income diversification has positive influence on the risk return trade off in the context of Nepalese commercial banks.

2.3 Research Gap

Literature signified that decision to diversify income sources is desirable for both efficiency and risk management. From the above study, it can be said most of the researches are based on U.S. banks, European Bank, Islamic banks and other banks of developed countries. This study focuses on the present scenario of income diversification and its impact on risk adjusted performance of Nepalese Commercial Banks, as very few research has been conducted in the context of Nepal. It is found that some research in the related topic, few years back. Hence, this research has attempted to fill the gap by taking reference of 20 sample banks with the time period of 2069/70 to 2075/76. This study tries to show the present issues, latest information on bank's income diversification, equity ratios, data and real picture of loan and advance of Nepalese Commercial Bank.

2.4 Theoretical Framework

In this research, as referred by Nepali (2017) risk adjusted performance of commercial bank which is shown by Risk Adjusted-Return on Assets (RAROA) and Risk Adjusted-Return on equity (RAROE) are the dependent variable and independent variables are Noninterest income (NONII), Herfindahl-Hirschman Index–HHI, equity to total assets ratio (EQUITY), loan to total assets ratio (LOAN), foreign ownership (FORGN) and total assets (SIZE) are independent variables.

Dependent Variables

Risk Adjusted Return on Assets (RAROA) is return by measuring how much risk is involved in producing that return, which is generally expressed as a number or rating. Chiorazzo (2008) used RAROA as a tool to measure the risk-adjusted profitability of banks and is positively related with diversification. Gurbuz et al. (2013) found the positive relationship between income diversification and risk-adjusted return on assets in Turkish banking sector. RAROA has led to the widespread use of measures of revenue volatility and risk adjusted return as dependent variables (Stiroh and Rumble, 2016; Merciea et al., 2007; Goddard et al., 2008)

Risk Adjusted Return on Equity (RAROE) Risk adjusted-return on equity (RAROE) is the ratio of ROE to standard deviation of ROE over the sample period. Return on equity (ROE) is a measure of financial performance calculated by dividing net income by shareholders' equity. Equity shareholders are the real owners of a company and are the risk-bearers and are entitled to total profits earned by the company after preference dividend. Return on equity relates the profitability of a company to equity shareholders' equity. ROE measures the company's profitability in terms of return to equity shareholders.

RAROE is return on equity by measuring how much risk is involved in producing that return. Gurbuz et al. (2013) found the positive relationship between income diversification and risk-adjusted return on equity in Turkish banking sector.

INDEPENDENT VARIABLES

1. Non-interest Income

Non-interest income is the income generated by banks other than loan creation. It is the sum of fee, commission and discount, exchange income and other incomes of the banks. NONII is bank and creditor income derived primarily from fees including deposit and transaction fees, insufficient funds (NSF) fees, annual fees, monthly account service charges, inactivity fees, check and deposit slip fees, and so on. DeYoung and Rice (2004) found that an increased focus on non-interest income is associated with a decline in risk-adjusted performance. Meslier et al. (2014) found

that increase in noninterest activities increases bank's risk-adjusted profits. Based on above discussion, following hypothesis has been developed:

H1: There is positive relationship between non-interest income and risk adjusted performance.

2. Herfindahl-Hirschman Index (HHI)

The measuring tool of income diversification is Herfindahl-Hirschman Index–HHI which measures the level of revenue diversification in the composition of net operating income. HHI is calculated by using following formula:

HHI= $(NETII/NOI)^2 + (NONII/NOI)^2$

Net operating income (NOI) captures the total value of NETII and NONII. HHI varies between 0.50 and 1.00. HHI value of 0.50 indicates complete income diversification in a bank, while HHI value of 1.00 represents the lowest level of income diversification. Estes (2014) revealed that HHI, for assets diversification, has positive impact on the risk adjusted performance. Gurbuz et al. (2013) showed that income diversification, measured through Herfindahl–Hirschman Index (HHI), improves the risk-adjusted performance of banks. Based on above discussion, following hypothesis has been developed:

H2: There is positive relationship between income diversification (HHI), and risk adjusted performance.

Equity in this study is the ratio of equity to total assets which measures the financial leverage of bank. According to Daud et al. leverage has positive relationship with the market adjusted return. However, Delpachitra and Lester (2013) found that the equity to assets ratio has negative impact on the risk-adjusted return on equity (RAROE). Hafidiyah (2016) found that equity to total assets is positively associated with the Z-Score i.e. proxy for risk adjusted return. Based on above discussion, following hypothesis has been developed:

H3: There is positive relationship between equity ratio and risk adjusted performance.

Loan in this study will be the ratio of total loans to total assets which measure the liquidity of banks. Hafidiyah and Trinugroho (2016) found that loan to total assets is positively associated with the Z-Score i.e. proxy for risk adjusted return. Likewise, Tarawneh and Khalaf (2017) revealed that bank loans have positive relationship with the bank profitability. Ismail et al. (2014) revealed that loan ratio has positive and significant relationship with the performance of banks in Pakistan. Based on above discussion, following hypothesis has been developed:

H4: There is positive relationship between loan ratio and risk adjusted performance.

Foreign ownership in this refers to the significant stake of foreign bank and investors on the capital structure of the bank. In this study, it is used as a dummy variable where dummy variable 1 is for foreign banks, 0 otherwise. Nguyen et al. (2012) found that there is larger proportion of non-interest income in foreign owned banks than that of others. However, Vinh and Mai (2016) revealed that the income diversification is not beneficial to commercial banks. Hafidiyah (2016) showed that joint venture banks are riskier than other banks when they engage in non-interest income activities. Based on above discussion, following hypothesis has been developed:

H5: There is negative relationship between foreign ownership and risk adjusted performance.

Size Natural logarithm of Total asset is used as proxy of bank size. Vinh and Mai (2016) found that bank size has positive relationship with the risk adjusted returns. Lepetit et al. (2008) showed a positive relationship between risk and income diversification for small banks. It means that bigger the banks with more diversification, higher would be the bank's risk. According to Sanya and Wolfe (2011) larger banks have better risk management and diversification opportunities. Based on above discussion, following hypothesis has been developed:

H6: There is positive relationship between bank size and risk adjusted performance.

Depending upon the existing theoretical and empirical evidences on the impact of income diversification on the risk adjusted performance of banks, the conceptual framework of this study is portrayed in Figure 1.

Figure 1. Conceptual Framework

1. NONII 2. HHI 3. EQUITY 4. LOAN 5. FORGN 6. SIZE	1. RAROA 2. RAROE
Independent	**Dependent Variables**
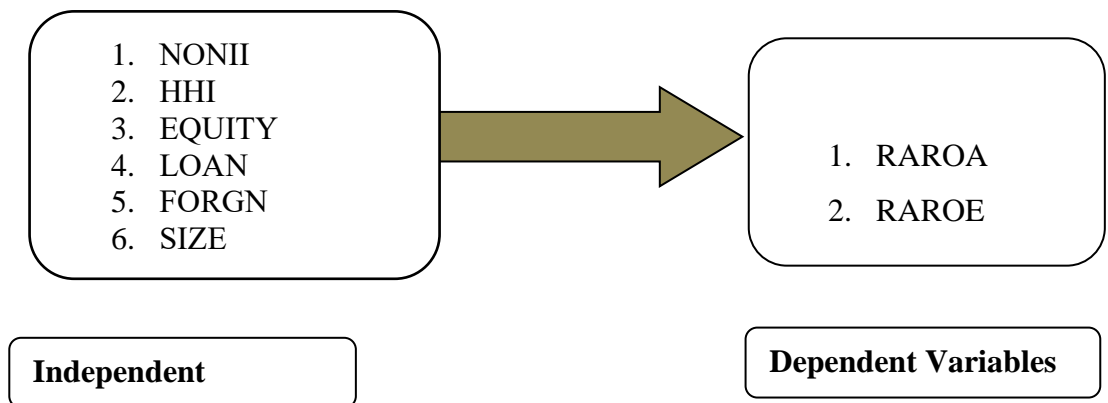
CHAPTER III
METHODOLOGY

This chapter deals with the research design and methodology. This chapter hence provides information about research design, population and sampling, sources of data, data collection procedures, tools of analysis and regression model. As in the study of, Nepali (2017) non-interest income (NONII), Herfindahl-Hirschman Index (HHI), equity to total assets ratio (EQUITY), loan to total assets ratio (LOAN), foreign ownership (FORGN), and total assets (SIZE) are independent variables. Whereas risk adjusted return on assets (RAROA) and risk adjusted return on equity (RAROE) as risk adjusted performance are dependent variables.

3.1 Research Design

Research designs namely descriptive have been used for the purpose of the study. This study seeks at investigating the impact of the income diversification on the risk adjusted performance of the twenty Nepalese commercial banks for the time period of ten years (2069/70 – 2075/76) leading to a total of 140 observations. In addition, causal comparative research design has been used to analyze the cause and effect relationship between the income diversifications variables and bank risk adjusted performance. Causal comparative approach has adopted to establish the directions, magnitudes and forms of the observed relationship between risk adjusted performance and other independent variables. Causal-comparative research, like correlational research, seeks to identify associations among variables and regression analysis has been conducted. The casual comparative research design helps to ascertain and understand the directions magnitudes and form of observed relationship between income diversification and risk adjusted performance of banks.

3.2 Population and Sample

The population for this study comprises all commercial banks operating in Nepal. There are 28 commercial banks currently operating in Nepal. Among the population, twenty commercial banks are taken as a sample that meets 7 years data (2069/70-2075/76) that is required for the purpose of analysis. The sampled banks are Nabil Bank Limited, Nepal Investment Bank Limited, Standard chartered Bank Limited, Himalayan Bank limited, Nepal SBI Bank Limited, Nepal Bangladesh Bank Limited,

Everest Bank Limited, Bank of Kathmandu Limited, Nepal Credit and commerce Bank Limited, NIC ASIA Bank Limited, Machhapuchhre Bank Limited, Kumari Bank Limited, Laxmi Bank Limited, Siddhartha Bank Limited, Agriculture Development Bank Limited, Global IME Bank Limited, Citizens Bank International Limited, Prime Commercial Bank Limited, Sunrise Bank Limited and NMB Bank Limited.

The study considered only those banks for the sample which have been established and operated before 2067 B.S. bank and also public banks viz. RBB, Nepal Bank, has not been taken because they present outliers in the data.

3.3 Sources of Data

The study is based on secondary data. For the purpose of study, Banking and Financial Statistics report published by Bank and financial Institution Regulation Department of Nepal Rastra Bank is used as the major sources of data which incorporates information derives from banks balance sheet and profit and loss statement. Besides the Banking and Financial Statistics reports by NRB for sample banks, required data and information is collected from the following sources:

1. Browsing of official website of sample banks.

2. NRB reports, directives and bulletins and its website.

3. Various publications dealing in the subject matters of study.

3.4 Data Collection Techniques

Since the study is based mainly on the secondary data, required facts and figures are obtained from the Banking and Financial Statistics reports collected from the official website of NRB and also from browsing the official websites of sample banks.

3.5 Tools of Analysis

Data analysis is performed using SPSS software. The collected data were entered into the database software Microsoft Excel and were coded in the statistical software SPSS such that the various analytical tools could be used to obtain the information. The

coded data were rerecorded and transformed as per the requirement of the study. Various statistical tools are used from SPSS to represent, tabulate and analyze the data

To comply with the objective, the report is primarily based on secondary data, which is collected through Banks and Financial Statistics reports. The data is analyzed using descriptive statistics. The correlation analysis is performed to check the relation between the independent and dependent variables.

Income Diversification and its impact on risk adjusted performance of the bank, is analyzed with two important tools. The first most important tool is the financial tool, which includes ratio analysis, and another is a statistical tool.

3.5.1 Financial Tools

The following financial ratios and other ratios are analyzed under the Income Diversification and Risk adjusted Performance analysis of selected twenty commercial banks.

Risk Adjusted Performance measures

1. Risk Adjusted-Return on Assets (RAROA)

Risk adjusted-return on assets (RAROA) is the ratio of return on Assets (ROA) to the standard deviation of ROA for sample period. The ratio of net income to total assets measures the return on total assets (ROA) after interest and taxes. ROA is an indicator of how well a company utilizes its assets, by determining how profitable a company is relative to its total assets. ROA, in basic terms, tells you what earnings were generated from invested capital (assets). The ROA figure gives investors an idea of how effective the company is in converting the money it invests into net income. The higher the ROA number, the better, because the company is earning more money on less investment. RAROE in this study has been calculated by using following formula.

RAROE=ROEit /σROEi

2. Risk Adjusted-Return on Equity (RAROE)

Risk adjusted-return on equity (RAROE) is the ratio of ROE to standard deviation of ROE over the sample period**.** Return on equity (ROE) is a measure of financial performance calculated by dividing net income by shareholders' equity**.** Equity shareholders are the real owners of a company and are the risk-bearers and are entitled to total profits earned by the company after preference dividend. Return on equity relates the profitability of a company to equity shareholders' equity. ROE measures the company's profitability in terms of return to equity shareholders. RAROE in this study has been calculated by using following formula.

$$RAROE = ROE_{it} / \sigma ROE_i$$

INCOME DIVERSIFICATION VARIABLES

1. Noninterest Income

Non-interest income is the income generated by banks other than loan creation. It is the sum of fee, commission and discount, exchange income and other incomes of the banks.

2. Herfindahl-Hirschman Index (HHI)

The measuring tool of income diversification is Herfindahl-Hirschman Index–HHI which measures the level of revenue diversification in the composition of net operating income. HHI is calculated by using following formula:

$$HHI = (NETII/NOI)^2 + (NONII/NOI)^2$$

Net operating income (NOI) captures the total value of NETII and NONII. HHI varies between 0.50 and 1.00. HHI value of 0.50 indicates complete income diversification in a bank, while HHI value of 1.00 represents the lowest level of income diversification.

3. Equity

Equity, in the study, is the ratio of equity to total assets which measures the financial leverage of bank.

Equity ratio=Equity/ Total Assets

4. Loan in the study, is the ratio of total loans to total assets which measures the liquidity of banks.

Loan ratio=Loan/Total Assets

5. **Size** Natural logarithm of total assets is taken as proxy of bank size.

Size=LN (assets)

3.5.2 Statistical Tools

1. Arithmetic Mean

Arithmetic Mean is the sum of the given observation divided by the number of observations. In such as case all the items are equally important. Simple Arithmetic Mean is used in this study as per necessary for analysis.

2. Standard Deviation (S.D.)

The standard deviation usually denoted by the letters (σ). Karl Pearson suggested it as a widely used measure of dispersion and defined as the given observations from their arithmetic mean of a set of value. It is also known as root mean square deviation. 1Standard deviation, in this study has been used to measure the degree of fluctuation of in variables as per the necessity of the analysis.

3. Correlation (r)

The value of coefficient of correlation as obtained shall always lie between ± 1, a value of -1 indicating a perfect negative relationship between the variables, of $+1$ a perfect positive relationship, and of no relationship when correlation coefficient is zero. The zero-correlation coefficient means the variables are uncorrected.

4. Regression Analysis

Regression is a statistical method for investing relationships between the variables by the establishment of an approximate functional relationship between them. It is considered as a useful tool for determining the strength of relationship between two (Simple Regression) or more (Multiple regression) variables. It helps to predict or estimate the value of one variable when the value of other variable/variables is

known. The regression line of dependent variable (Y) on independent variable (X) is given by;

$$Y = a + bX\ldots\ldots\ldots\ldots\ldots\ldots\ldots\text{ (i)}$$

Where, a   = constant

b   = regression coefficient

3.6 Regression Model

The model estimated in this study assumes that the risk adjusted performance of banks depends on income diversification variables. The empirical investigation employs two Ordinary Least Square (OLS) models in order to give in depth analysis of impact of income diversification on the risk adjusted performance in the Nepalese commercial banks. Noninterest income (NONII), Herfindahl-Hirschman Index–HHI, equity to total assets ratio (EQUITY), loan to total assets ratio (LOAN), foreign ownership (FORGN) and total assets (SIZE) are independent variables. From the conceptual framework the function of dependent variables (i.e. risk adjusted performance) takes the following form:

Risk adjusted performance = f (NONII, HHI, EQUITY, LOAN, FORGN, and SIZE)

More specifically, the given model has been segmented into following models:

Model 1

$RAROA_{it} = \alpha_{it} + \beta_1 NONII_{it} + \beta_2 HHI_{it} + \beta_3 EQUITY_{it} + \beta_4 LOAN_{it} + \beta_5 FORGN_{it} + \beta_6 SIZE_{it} + e_{it}$

Model 2

$RAROE_{it} = \alpha_{it} + \beta_1 NONII_{it} + \beta_2 HHI_{it} + \beta_3 EQUITY_{it} + \beta_4 LOAN_{it} + \beta_5 FORGN_{it} + \beta_6 SIZE_{it} + e_{it}$

Where,

RAROA = Risk-adjusted return on assets defined as the ratio of return on assets (ROA) of bank i for the given period and standard deviation of return on assets (ROA) for the sample period.

RAROE = Risk-adjusted return on equity defined as the ratio of return on equity (ROE) of bank i for the given period and standard deviation of return on equity (ROE) for the sample period.

NONII = Non-interest income defined as the sum of sum of fee, commission and discount income, other income and exchange income

HHI = Herfindahl Hirschman index for income diversification defined as sum square of net interest income share and non-interest income share over net operating income

EQUITY = Equity multiplier defined as ratio of total equity to total assets

LOAN = Loan ratio defined as ratio of total loans to total assets

FORGN = Foreign ownership defined as dummy variable; 1 for foreign banks, 0 otherwise

SIZE = Total assets of the firm

e = Error term

$\beta 0$ is the constant term and $\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$, $\beta 5$ and $\beta 6$ are the beta coefficients of variables.

The model 1 measures the effect of the income diversification on risk adjusted performance in Nepalese commercial banks, where risk adjusted-return on asset (RAROA) is the proxy for risk adjusted performance.

The model 2 measures the effect of the income diversification on risk adjusted performance in Nepalese commercial banks, where risk adjusted-return on equity (RAROE) is the proxy for profitability.

CHAPTER IV

RESULTS

This chapter aims to obtain the objective of the study for critically examining the quantitative data. It contains the analysis, discussion and interpretation of the results based on data collected.

4.1 Analysis of Financial Indicators and Variables

4.1.1 Risk Adjusted Return

Risk-adjusted return defines an investment's return by measuring how much risk is involved in producing that return, which is generally expressed as a number or rating.

Risk Adjusted Return on Assets

Table 4.1 Risk Adjusted-Return on Assets

Year/Banks	NABIL	NIBL	SCBNL	HBL	NSBI	NBBL	EBL	BOK	NCC	NICA
2069/70	9.334	9.168	7.095	5.453	4.632	6.316	8.471	4.719	5.992	6.033
2070/71	8.730	7.716	7.093	5.044	5.336	4.970	7.964	3.414	5.171	5.764
2071/72	6.271	6.568	5.662	4.435	6.477	5.675	6.467	1.984	5.082	4.587
2072/73	7.307	6.967	4.968	6.471	6.930	6.984	5.701	2.823	7.608	5.319
2073/74	7.730	7.408	5.015	6.551	6.245	6.029	6.049	3.703	4.983	5.771
2074/75	7.930	7.049	6.777	6.803	6.762	4.938	6.883	4.083	5.318	3.164
2075/76	7.376	6.026	7.134	7.082	7.583	4.001	6.669	4.723	6.747	5.566
Year/Banks	MBL	KUMARI	LAXMI	SBL	ADBNL	GLOBAL	CITIZEN	PRIME	SUNRISE	NMB
2069/70	1.304	3.662	6.396	7.741	6.734	6.862	3.170	6.009	4.846	5.661
2070/71	2.933	3.600	5.783	6.818	3.846	8.956	2.212	6.868	5.024	5.242
2071/72	3.098	3.439	3.863	8.076	5.532	7.049	0.000	7.025	5.013	4.976
2072/73	3.641	6.286	5.315	9.770	5.242	8.078	2.661	8.290	7.203	6.972
2073/74	4.447	4.335	5.544	7.110	5.047	9.098	2.370	8.285	6.273	6.546
2074/75	3.443	4.484	6.236	8.295	6.183	8.145	2.316	8.071	6.303	4.293
2075/76	3.934	4.969	6.997	8.752	6.528	9.423	2.088	8.800	7.068	4.537

(Source: Researcher's Calculation -1)

The Table 4.1 shows the ratio of ROA to the standard deviation of ROA for seven consecutive years. Here, ratios of all twenty commercials banks are in fluctuating trend.

Table 4.2 Descriptive Statistics of RAROA

	Minimum	Maximum	Mean	S.D.
RAROA	0.000	9.770	5.857	1.833

Table 4.2 shows the descriptive statistics of dependent variables RAROA for the selected Nepalese commercial banks. Risk adjusted return of assets ranges from a minimum of 0 to a maximum of 9.770 leading to an average of 5.857 and having standard deviation 1.833. As standard deviation is a statistic that measures the dispersion of a dataset relative to its mean the, lower S.D. value provided by table 4.2 indicates that there less volatility on RAROA of sample banks over the period.

Risk Adjusted Return on Equity

Table 4.3 Risk Adjusted-Return on Equity

Year/Bank	NABIL	NIBL	SCBNL	HBL	NSBI	NBBL	EBL	BOK	NCC	NICA
2069/70	6.599	5.355	5.200	7.469	8.301	3.740	6.602	5.750	6.249	4.401
2070/71	5.849	4.446	5.262	6.985	8.461	2.847	5.634	3.973	5.438	4.160
2071/72	4.528	3.953	4.506	6.239	8.185	3.649	4.970	2.405	5.067	3.501
2072/73	5.334	3.314	3.797	9.304	8.220	4.692	4.572	3.398	7.790	4.178
2073/74	4.346	2.970	2.776	8.385	6.733	3.064	4.181	4.167	4.940	4.287
2074/75	4.151	2.944	3.131	7.297	6.109	2.085	4.079	3.982	5.244	2.816
2075/76	3.879	2.513	3.355	7.207	6.538	1.810	3.761	4.096	5.407	6.083
Year/Bank	MBL	KUMARI	LAXMI	SBL	ADBNL	GLOBAL	CITIZEN	PRIME	SUNRISE	NMB
2069/70	1.064	2.997	6.532	2.868	6.753	8.193	2.888	6.603	5.045	2.704
2070/71	3.029	3.011	6.116	1.880	4.221	10.038	2.504	8.055	5.799	3.020
2071/72	3.658	2.960	4.031	0.501	6.932	7.539	0.000	8.356	5.979	3.301
2072/73	4.030	5.573	5.072	0.571	6.765	8.849	2.814	9.926	8.011	4.526
2073/74	3.706	2.877	4.128	0.324	5.931	10.192	2.010	8.430	5.698	3.423
2074/75	2.550	2.700	4.164	0.332	6.827	8.782	1.661	7.596	5.050	1.686
2075/76	3.262	3.194	4.969	0.363	6.974	9.819	1.520	8.011	5.717	1.719

(Source: Researcher's calculation - 2)

The Table 4.3 shows the ratio of ROE to the standard deviation of ROE for seven consecutive years. Here, ratios of all twenty commercials banks are in fluctuating trend.

Table 4.4 Descriptive statistics of RAROE

	Minimum	Maximum	Mean	S.D.
RAROE	0.000	10.192	4.807	2.283

Table 4.4 shows the descriptive statistics of dependent variables RAROE for the selected Nepalese commercial banks. Risk adjusted return of equity ranges from a minimum of 0 to a maximum of 10.192 leading to an average of 4.807 and having standard deviation 2.283. As standard deviation is a statistic that measures the dispersion of a dataset relative to its mean the, lower S.D. value provided by table 4.4 indicates that there less volatility on RAROE of sample banks over the period.

4.1.2 Income Diversification Variables

Non-Interest Income

Table 4.5 Non-Interest income (in Billion Rs.)

Year/Banks	NABIL	NIBL	SCBNL	HBL	NSBI	NBBL	EBL	BOK	NCC	NICA
2069/70	1.259	0.818	0.811	0.857	0.575	0.304	0.374	0.349	0.087	0.309
2070/71	1.478	1.094	0.978	1.058	0.653	0.403	0.332	0.377	0.122	0.252
2071/72	1.463	1.132	0.975	1.206	0.774	0.513	0.400	0.432	0.163	0.249
2072/73	1.785	1.324	1.018	1.219	0.918	0.723	0.424	0.454	0.222	0.334
2073/74	1.376	1.754	1.094	1.350	1.163	0.986	0.451	0.568	0.292	0.362
2074/75	1.766	1.895	1.317	1.447	1.243	0.941	0.528	0.737	0.328	0.417
2075/76	1.589	2.306	1.686	1.553	1.348	1.270	1.465	0.769	0.728	0.774
Year/Banks	MBL	KUMARI	LAXMI	SBL	ADBNL	GLOBAL	CITIZEN	PRIME	SUNRISE	NMB
2069/70	0.116	0.233	0.354	0.469	0.328	0.596	1.402	0.073	0.149	0.119
2070/71	0.225	0.278	0.445	0.587	0.575	0.670	0.139	0.106	0.170	0.203
2071/72	0.364	0.253	0.512	0.597	0.557	0.870	0.195	0.402	0.202	0.250
2072/73	0.357	0.284	0.562	0.683	0.586	1.038	0.385	0.541	0.279	0.408
2073/74	0.425	0.331	0.853	0.798	0.957	1.168	0.372	0.927	0.368	0.623
2074/75	0.483	0.524	0.766	1.106	0.631	1.269	0.421	1.108	0.526	0.850
2075/76	1.134	0.677	0.852	1.454	0.816	1.681	0.938	0.896	0.719	1.043

(Source: Banking and Financial Statistics Report - 3)

Table 4.5 indicates the non-interest income of sample banks over the sample period. From the above table we can see that non-interest income is inclined toward upward direction with the increment in the year among maximum of sample banks.

Table 4.6 Descriptive Statistics of NONII

	Minimum	Maximum	Mean	S.D.
NONII	0.073	2.306	0.736	0.467

Here, in the table 4.6 shows that Non-interest income varies from a minimum of Rs. 0.073 billion to a maximum of Rs. 2.306 billion leading to an average of 0.736 billion. Similarly, the standard deviation of Rs. 0.467 billion indicates that noninterest income can deviate by Rs. 0.467 billion on an average.

Herfindahl-Hirschman Index

Table 4.7 Herfindahl-Hirschman Index

Year/Banks	NABIL	NIBL	SCBNL	HBL	NSBI	NBBL	EBL	BOK	NCC	NICA
2069/70	0.611	0.670	0.583	0.620	0.614	0.574	0.790	0.656	0.823	0.747
2070/71	0.597	0.606	0.560	0.582	0.604	0.565	0.817	0.639	0.767	0.785
2071/72	0.591	0.600	0.553	0.572	0.602	0.565	0.786	0.637	0.717	0.765
2072/73	0.591	0.623	0.543	0.612	0.601	0.557	0.795	0.649	0.734	0.753
2073/74	0.678	0.607	0.555	0.611	0.592	0.523	0.808	0.703	0.770	0.782
2074/75	0.661	0.626	0.587	0.620	0.641	0.558	0.821	0.685	0.720	0.826
2075/76	0.707	0.603	0.558	0.640	0.656	0.577	0.672	0.719	0.691	0.820
Year/Banks	MBL	KUMARI	LAXMI	SBL	ADBNL	GLOBAL	CITIZEN	PRIME	SUNRISE	NMB
2069/70	0.800	0.690	0.597	0.589	0.876	0.582	0.511	0.878	0.772	0.764
2070/71	0.718	0.622	0.544	0.575	0.802	0.600	0.797	0.834	0.766	0.675
2071/72	0.664	0.657	0.546	0.580	0.814	0.600	0.769	0.653	0.738	0.674
2072/73	0.729	0.685	0.579	0.626	0.843	0.611	0.690	0.621	0.737	0.720
2073/74	0.736	0.672	0.548	0.621	0.791	0.628	0.711	0.560	0.747	0.686
2074/75	0.738	0.671	0.624	0.627	0.846	0.626	0.721	0.579	0.728	0.654
2075/76	0.632	0.701	0.658	0.638	0.820	0.630	0.625	0.681	0.720	0.684

(Source: Researcher's calculation -4)

The measuring tool of income diversification is Herfindahl-Hirschman Index–HHI which measures the level of revenue diversification in the composition of net operating income. All the value lies in between 0.50 to 1 which indicates the diversification in the bank.

Table 4.8 Descriptive Statistics of Herfindahl-Hirschman Index

	Minimum	Maximum	Mean	S.D.
HHI	0.5113	0.8781	0.6708	0.0876

Here in the above table HHI ranges from a minimum of 0.5113 to a maximum of 0.8781 leading to an average of 0.6708. It indicates that, on an average, majority of the banks are approaching to 0.50 which is an indicator of the income diversification.

Equity

Table 4.9 Equity to total Assets Ratio (in %)

Year/Banks	NABIL	NIBL	SCBNL	HBL	NSBI	NBBL	EBL	BOK	NCC	NICA
2069/70	6.983	7.759	8.807	7.341	4.821	11.950	6.248	8.042	7.242	8.691
2070/71	7.136	7.634	8.394	7.029	6.053	10.431	6.745	8.846	8.413	8.208
2071/72	6.121	7.140	7.679	7.086	7.568	9.417	5.447	7.537	8.133	7.783
2072/73	6.810	11.073	8.988	6.757	7.000	9.457	5.992	8.574	7.967	7.728
2073/74	9.875	11.039	13.612	8.692	8.736	14.936	7.316	8.954	8.478	8.580
2074/75	8.288	10.233	13.944	9.780	10.266	15.089	8.123	11.188	8.236	5.826
2075/76	9.621	10.983	13.180	9.739	9.711	13.121	8.190	11.550	12.030	5.374
Year/Banks	MBL	KUMARI	LAXMI	SBL	ADBNL	GLOBAL	CITIZEN	PRIME	SUNRISE	NMB
2069/70	8.392	7.803	7.353	-1.249	14.187	8.134	8.377	7.717	7.833	8.764
2070/71	6.541	7.898	7.246	5.746	13.124	8.372	6.885	7.731	7.773	7.864
2071/72	6.294	7.404	7.509	5.601	10.834	8.943	8.830	7.522	7.369	6.688
2072/73	7.287	7.412	8.571	6.288	12.249	8.096	7.501	7.604	8.564	7.700
2073/74	10.567	11.626	11.778	8.898	13.123	8.419	12.244	9.814	11.022	10.337
2074/75	9.934	10.391	11.361	8.676	13.918	8.777	11.613	9.471	11.427	13.648
2075/76	8.470	10.064	10.469	8.287	14.044	9.011	11.830	10.394	10.874	11.708

(Source: Banking and Financial Statistics Report - 5)

The Table 4.9 exhibits the proportion of equity in total assets. In the table sample bank SBL has the negative equity in year 2069/70. It is because on that year, bank had negative retained earning which lead to negative equity ratio of bank on that year.

Table 4.10 Descriptive Statistics of Equity to Total Assets Ratio

	Minimum	Maximum	Mean	S.D.
EQUITY	-1.249	15.089	8.948	2.368

As we know banks are operated by people's money, we can also see over here that average equity in banks are just 8.948% of total assets of bank. Leading to minimum -1.249% and maximum 15.089% having standard deviation of 2.368. We can also see rising trend in equity ratio in last three years and it is primarily because of Capital Adequacy Framework 2015 published by NRB in which every commercial banks

have to maintain common equity on the basis of Risk Weighted Exposure of their activities which should be followed until 2019.

4.1.2.4 LOAN

Table 4.11 Loan to Total Assets Ratio (in %)

Year/Banks	NABIL	NIBL	SCBNL	HBL	NSBI	NBBL	EBL	BOK	NCC	NICA
2069/70	60.724	60.731	49.179	62.837	43.945	52.269	66.002	64.946	59.964	66.464
2070/71	59.545	57.718	48.033	58.888	55.863	54.952	67.114	67.240	66.374	69.772
2071/72	53.661	60.367	42.219	61.878	64.926	58.283	54.866	67.531	66.513	67.150
2072/73	55.677	62.937	47.873	65.517	58.201	62.078	59.857	70.534	67.402	71.055
2073/74	59.335	64.146	50.238	68.843	60.734	57.793	67.166	70.436	65.615	71.185
2074/75	66.177	66.507	55.066	73.092	71.565	60.948	64.289	73.518	68.545	69.778
2075/76	67.945	64.430	58.391	72.815	72.898	67.126	62.733	72.703	70.628	67.923
Year/Banks	MBL	KUMARI	LAXMI	SBL	ADBNL	GLOBAL	CITIZEN	PRIME	SUNRISE	NMB
2069/70	68.564	65.928	61.178	49.039	59.361	64.074	64.922	64.738	66.759	61.478
2070/71	68.341	67.772	58.233	63.323	57.628	67.015	66.847	69.595	66.110	65.321
2071/72	65.689	67.441	60.125	67.339	60.374	69.321	68.136	68.788	69.376	63.760
2072/73	71.153	66.602	66.950	68.958	63.088	66.531	70.826	71.851	71.540	69.768
2073/74	68.768	69.708	68.957	70.453	61.974	65.830	71.221	71.759	69.747	68.943
2074/75	70.783	69.917	73.469	69.044	63.999	72.495	71.517	70.876	71.596	71.252
2075/76	68.876	73.802	73.029	70.390	64.142	75.795	70.030	70.669	71.418	71.030

(Source: Banking and Financial Statistics Report - 6)

Table 4.11 shows the proportion of loan in total assets of sample banks in sample period. As we all know activity of bank involves borrowing and lending of money business. From table we can see that the high proportion of loan in assets.

Table 4.12 Descriptive Statistics of Loan to Total Assets

	Minimum	Maximum	Mean	S.D.
LOAN	42.219	75.795	65.136	6.453

In the table of loan to total assets ratio we can see that minimum loan ratio is 42.219 percent with maximum 75.795 percent with the average loan ratio is 65.136 percent and standard deviation 6.453.

Foreign Ownership

Table 4.13 Foreign Ownership

Year/Banks	NABIL	NIBL	SCBNL	HBL	NSBI	NBBL	EBL	BOK	NCC	NICA
2069/70	1	0	1	1	1	1	1	0	0	0
2070/71	1	0	1	1	1	1	1	0	0	0
2071/72	1	0	1	1	1	1	1	0	0	0
2072/73	1	0	1	1	1	1	1	0	0	0
2073/74	1	0	1	1	1	1	1	0	0	0
2074/75	1	0	1	1	1	1	1	0	0	0
2075/76	1	0	1	1	1	1	1	0	0	0
Year/Banks	MBL	KUMARI	LAXMI	SBL	ADBNL	GLOBAL	CITIZEN	PRIME	SUNRISE	NMB
2069/70	0	0	0	0	0	0	0	0	0	1
2070/71	0	0	0	0	0	0	0	0	0	1
2071/72	0	0	0	0	0	0	0	0	0	1
2072/73	0	0	0	0	0	0	0	0	0	1
2073/74	0	0	0	0	0	0	0	0	0	1
2074/75	0	0	0	0	0	0	0	0	0	1
2075/76	0	0	0	0	0	0	0	0	0	1

(Source: Banks Annual Reports)

Foreign ownership refers to the significant stake of foreign bank and investors on the capital structure of the bank. In this study, it is used as a dummy variable where dummy variable 1 is for foreign banks, 0 otherwise.

Table 4.14 Descriptive Statistics of Foreign Ownership

	Minimum	Maximum	Mean	S.D.
FORGN	0.000	1.000	0.350	0.479

The table 4.14 shows that minimum 0 and Maximum 1, leading average of 0.350 with standard deviation 0.479 for foreign ownership which have dummy Variables 1 for bank having foreign investment and 0 for domestic bank.

SIZE

Table 4.15 Natural Logarithm of Assets

Year/Banks	NABIL	NIBL	SCBNL	HBL	NSBI	NBBL	EBL	BOK	NCC	NICA
2069/70	11.268	11.264	10.758	11.052	11.102	10.115	11.108	10.422	10.187	10.790
2070/71	11.448	11.429	10.911	11.231	11.047	10.442	11.177	10.600	10.199	10.887
2071/72	11.735	11.618	11.102	11.360	11.020	10.684	11.513	10.760	10.373	11.045
2072/73	11.844	11.834	11.101	11.533	11.298	10.854	11.653	11.328	10.513	11.321
2073/74	11.945	12.001	11.278	11.604	11.536	11.062	11.665	11.372	11.200	11.525
2074/75	12.041	12.115	11.348	11.685	11.566	11.144	11.892	11.456	11.272	12.061
2075/76	12.181	12.221	11.462	11.820	11.711	11.321	12.091	11.557	11.423	12.314
Year/Banks	MBL	KUMARI	LAXMI	SBL	ADBNL	GLOBAL	CITIZEN	PRIME	SUNRISE	NMB
2069/70	10.359	10.324	10.351	11.254	11.436	10.642	10.212	10.422	10.221	10.159
2070/71	10.663	10.423	10.533	10.682	11.593	11.059	10.451	10.596	10.359	10.336
2071/72	10.848	10.598	10.798	10.897	11.692	11.173	10.662	10.781	10.582	10.647
2072/73	11.027	10.718	10.968	11.300	11.791	11.413	10.953	10.950	11.020	11.249
2073/74	11.211	11.080	11.205	11.459	11.916	11.699	11.117	11.305	11.213	11.399
2074/75	11.418	11.405	11.343	11.734	11.961	11.766	11.301	11.509	11.345	11.573
2075/76	11.633	11.545	11.568	11.946	12.068	11.922	11.438	11.589	11.489	11.770

(Source: Banking and Financial Statistics Report - 7)

We use natural logarithm of total assets for variable 'Size' in this calculations. Natural logarithm of total assets is an asset-based measure. Total assets include loans, securities, investments and other assets.

Table 4.16 Descriptive Statistics of Size

	Minimum	Maximum	Mean	S.D.
SIZE	10.115	12.314	11.213	0.521

Here, in the table minimum natural logarithm of total assets value is 10.115 having maximum 12.315 with average 11.213 and standard deviation 0.521.

4.2. Analysis of Statistical Indicators and Variables

In statistical analysis, mainly correlation and multiple regression between Dependent and independent variables have been analyzed.

4.2.1. Correlation between Dependent Variables and Independent Variables

The correlation between Dependent and Independent Variables measures the degree of relationship among each other variables.

Table 4.17 Pearson's Correlation Coefficient Matrix

	RAROA	RAROE	NONII	HHI	EQUITY	LOAN	FORGN	SIZE
RAROA	1							
RAROE	.465**	1						
NONII	.421**	0.070	1					
HHI	-.202*	0.022	-.524**	1				
EQUITY	-0.100	-0.139	.227**	0.012	1			
LOAN	-0.080	-0.024	-0.104	.302**	0.150	1		
FORGN	.185*	0.057	.339**	-.285**	0.005	-.462**	1	
SIZE	.329**	0.055	.681**	0.042	.254**	0.139	0.127	1
	**. Correlation is significant at the 0.01 level (2-tailed).							
	*. Correlation is significant at the 0.05 level (2-tailed).							

Table 4.12 reports the correlation magnitude among variables. The table indicates that that non-interest income is positively correlated to risk adjusted return on assets. It indicates that increase in noninterest income leads to increase in risk adjusted return on assets. The result is significant at the 1 percent level of significance. Likewise, foreign ownership and bank size have positive relationship with risk adjusted return on assets. However, the results show that equity ratio and loan ratio are negatively correlated to risk adjusted return on assets. It indicates that lower the equity ratio and loan ratio, higher would be the risk adjusted return on assets. Herfindahl-Hirschman Index-HHI, proxy for income diversification, has weak and negative relationship with the risk adjusted return on assets which is consistent with the result of (Nepali, 2017).

Similarly, the result shows that there exists positive relationship of noninterest income, Herfindahl-Hirschman Index-HHI, foreign ownership and bank size with the risk adjusted return on equity. It reveals that higher the noninterest income, foreign ownership and bank size higher would be the risk adjusted return on equity. However,

equity ratio and loan ratio have negative relationship with the risk adjusted return on equity indicating that decrease in equity ratio and loan ratio, leads to increase in the risk adjusted return on equity.

4.3. Regression Analysis

Regression analysis is a set of statistical processes for estimating the relationships between a dependent variable (often called the 'outcome variable') and one or more independent variables (often called 'predictors', 'covariates', or 'features'). The most common form of regression analysis is linear regression, in which this research model is also based.

The Multiple Regression Model of NONII, HHI, EQUITY, LOAN. FORGN and SIZE on RAROA

The Table 4.18 shows the regression results of noninterest income, Herfindahl-Hirschman Index-income diversification, equity to total assets, loan to total assets, dummy variable for foreign ownership and natural logarithm of total assets-bank size on risk adjusted return on assets of Nepalese commercial banks.

Table 4.18 Estimated Regression of NONII, HHI, EQUITY, LOAN, FORGN and SIZE on RAROA

Variable	Coefficient	Std. Error	t-statistics	Prob.
(Constant)	1.254	4.293	0.292	0.771
NONII	1.442	0.641	2.249	0.026
HHI	0.048	2.468	0.020	0.984
EQUITY	-0.166	0.062	-2.683	0.008
LOAN	-0.002	0.026	-0.091	0.928
FORGN	0.163	0.349	0.466	0.642
SIZE	0.454	0.481	0.944	0.347
R-squared	0.227	F-statistics		6.498
Adjusted R-squared	0.192	Prob.(F-statistics)		.000[b]

(Source: Researcher's Calculation-8)

Table 4.18 shows that beta coefficient is positive for non-interest income, HHI, foreign ownership and size. It reveals that positive impact of non-interest income on the risk adjusted return on assets indicating that higher the non-interest income, higher would be the risk adjusted return on assets. This finding is consistent with the findings of Swada (2013). Similarly, the beta coefficient is positive for HHI, proxy for the income diversification. This means HHI has positive effect on the risk adjusted return

on assets. But result also shows that the HHI index have insignificant impact on RAROA. However, the beta coefficients are negative for equity ratio and loan ratio indicating that the equity ratio and loan ratio have negative influence on the risk adjusted return on assets. It also shows that higher the equity ratio and loan ratio lower would be the risk adjusted return on assets.

Additionally, the beta coefficient is positive for foreign ownership in banks. It means that increase in foreign ownership increases risk adjusted return on assets. It shows the positive impact of foreign ownership on the risk adjusted return on assets. Similarly, the beta coefficient is also positive for bank size which is the size of total assets. The result shows that bigger the bank's size, higher would be risk adjusted return on assets.

The regression model displays F-value of 6.498 with a probability value of 0.000 and it is statistically significant. According to the R2 value the 22.70 percent of total variation in the risk adjusted return on assets is explained by the six independent variables. This implies the other 77.30 percent remained as unexplained independent variables.

The Multiple Regression Model of NONII, HHI, EQUITY, LOAN. FORGN and SIZE on RAROE

Table 4.19 shows the regression results of noninterest income, Herfindahl-Hirschman Index- income diversification, equity to total assets, loan to total assets, dummy variable for foreign ownership and natural logarithm of total assets- bank size on risk adjusted return on equity of Nepalese commercial banks.

Table 4.19 Estimated Regression of NONII, HHI, EQUITY, LOAN, FORGN and SIZE on RAROE

Variable	Coefficient	Std. Error	t-statistics	Prob.
(Constant)	4.442	2.217	2.003	0.047
NONII	0.941	0.783	1.201	0.231
HHI	6.170	2.632	2.344	0.020
EQUITY	-0.143	0.067	-2.150	0.033
LOAN	-0.074	0.025	-2.971	0.003
FORGN	-0.462	0.381	-1.213	0.227
SIZE	0.006	0.007	0.858	0.392
R-squared	0.117	F-statistics		4.244
Adjusted R-squared	0.089	Prob.(F-statistics)		.000[b]

(Source: Researcher's calculation-9)

The Table 4.19, multiple regression analysis presents F-value of 4.244 with probability value of 0.000. This implies that the independent variables have a significant impact on the risk adjusted return on equity.

The coefficient of determination or R2 is 11.70 percent which shows that 11.70 percent of the variation in the risk adjusted return on equity is explained by the independent variables of the study while remaining 88.30 percent is explained by other factors.

The result shows that beta coefficient is positive for non-interest income (NONII), HHI, and SIZE. The positive coefficient of non-interest income indicates that marginal increase in non-interest leads to increase in risk adjusted return income but it doesn't have significant impact on the risk adjusted return on equity. The results also show that the risk adjusted return on equity has significant impact from HHI index or income diversification. The positive beta coefficient of HHI indicates that the higher the income diversification in the higher will be the risk adjusted return on equity. This finding is similar to the findings of Lee, Hsieh, and Yang (2014). Additionally, the beta coefficient is positive for SIZE of banks. It reveals that the SIZE has positive effect on the risk adjusted return on equity but there is insignificant impact of size on risk adjusted return on equity.

On the other hand, the beta coefficient is negative for equity ratio. It reveals that increase in equity ratio leads to decrease in the risk adjusted return on equity as there is a negative influence of equity ratio on the risk adjusted return on equity. The result

also shows that equity have significant impact on the risk adjusted return on equity. This finding is similar to the findings of Delpachitra and Lester (2013). The beta coefficient is also negative for loan ratio. It indicates that higher the loan in total assets of the bank, lower would be the risk adjusted return on equity. It also have significant impact on risk adjusted return on equity. This study is similar to Nepali (2017). The study further shows the negative impact of foreign ownership in bank on the risk adjusted return on equity. It reveals that the foreign ownership has negative effect on the risk adjusted return on equity. But it also shows insignificant of foreign ownership on risk adjusted return on equity.

Result of Hypothesis

Table 4.20 Result of Hypothesis

Descriptions	Tests used	Accept/ Reject Hypothesis
(H1): There is positive relationship between non-interest income and risk adjusted performance.	2-tailed test	Accepted
(H2): There is positive relationship between income diversification (HHH) and risk adjusted performance.	2-tailed test	Rejected
(H3): There is positive relationship between equity ratio and risk adjusted performance.	2-tailed test	Rejected
(H4): There is positive relationship between loan ratio and risk adjusted performance.	2-tailed test	Rejected
(H5): There is negative relationship between foreign ownership and risk adjusted performance.	2-tailed test	Rejected
(H6): There is positive relationship between bank size and risk adjusted performance.	2-tailed test	Accepted

4.4 Major Findings

The study aimed to analyze the impact of income diversification on risk adjusted performance. As per the analysis of data, following major findings have been obtained:

1. The risk adjusted return of assets ranges from a minimum of 0 to a maximum of 9.770 leading to an average of 5.857 and having standard deviation 1.833 of sample banks over the period.

2. The Risk adjusted return of equity ranges from a minimum of 0 to a maximum of 10.192 leading to an average of 4.807 and having standard deviation 2.283 of sample banks over the period.

3. Non-interest income varies from a minimum of Rs. 0.073 billion to a maximum of Rs. 2.306 billion leading to an average of 0.736 billion. Similarly, the standard deviation of Rs. 0.467 billion indicates that noninterest income can deviate by Rs. 0.467 billion on an average.

4. HHI ranges from a minimum of 0.5113 to a maximum of 0.8781 leading to an average of 0.6708 with standard deviation 0.0876. It indicates that, on an average, majority of the banks are approaching to 0.50 which is an indicator of the income diversification.

5. The average equity in banks are just 8.948% of total assets of bank. Leading to minimum -1.249% and maximum 15.089% having standard deviation of 2.368.

6. The average loan in banks are 65.136 percent. Leading to minimum loan ratio 42.219 percent with maximum 75.795 percent with standard deviation 6.453.

7. In this study, foreign ownership is used as a dummy variable where dummy variable 1 is for foreign banks, 0 otherwise.

8. The minimum natural logarithm of total assets value is 10.115 having maximum 12.315 with average 11.213 and standard deviation 0.521.

9. Correlations between RAROA and NONII is positive with the value 0.421, negative relationship with HHI having value -0.202, negative relationship with

equity having value -0.100, negative relationship with loan having value -0.080 and similarly positive relationship with foreign ownership and size of bank with value 0.185 and 0.329 respectively.

10. Correlations between RAROE and NONII is positive having value 0.070, slightly positive relationship with HHI having value 0.022, negative relationship with equity and loan having value -0.139 and -0.024 respectively. Similarly, positive relationship with foreign ownership and size of the banks having value 0.057 and 0.055 respectively.

11. The table 4.18 revealed that the beta coefficient is positive for non-interest income, HHI, foreign ownership and size having value 1.442, 0.048, 0.163 and 0.454 respectively. It reveals that positive impact of those independent variables on the risk adjusted return on assets indicating that higher the non-interest income, HHI, foreign ownership and size higher would be the risk adjusted return on assets. Similarly, the beta coefficient is negative for equity and loan having value -0.166 and -0.002 respectively which have negative impact on RAROA.

12. The table 4.19 revealed that the beta coefficient is positive for non-interest income, HHI, and size having value 0.941, 6.170, 0.006 respectively. It reveals that positive impact of those independent variables on the risk adjusted return on assets indicating that higher the non-interest income, HHI, and size higher would be the risk adjusted return on equity. Similarly, the beta coefficient is negative for equity, loan and foreign ownership having value -0.143, -0.074 and -0.462 respectively which have negative impact on RAROE.

13. The P-value in table 4.18 and 4.19 shows 0.00 for both observations which explains that there is significant impact of independent variables on RAROA and RAROE.

14. In the table 4.18 the value of R squared is 22.70% which reveals that only 22.70 percent of variation on RAROA is obtained because of changes in independent variables remaining 77.30 % of variation is due to other unexplained variables.

15. In the table 4.19 the value of R squared is 11.70 percent which reveals that only 11.70 percent of variations on RAROE is due to changes in independent variables other remaining 88.30 percent of variations is due to other unexplained variables.

CHAPTER V

CONCLUSIONS

The study presents the impact of income diversification on risk-return trade-off in the context of Nepalese Commercial banks. It was examine using correlations and regressions to draw conclusions. This chapter includes the summary, conclusions, implication and recommendation for further research.

5.1 Discussions

Income diversification is creating pool of modern banking revenue sources along with the traditional banking activities for sound financial performance of the banks. Income diversification in banking sector refers to increasing share of fees, net trading profits, exchange incomes, commission and charges, and other non-interest income within net operating income of a bank. An important source of diversification for the banks is considered as non-interest incomes.

This study attempts to examine the relationship between income diversification and risk return trade off in Nepalese commercial banks. The study is based on the secondary data which are gathered for twenty commercial banks in Nepal for the period of 7 years from 2069/70 to 2075/76. In the study non-interest income, foreign ownership has positive correlation with risk adjusted return on assets and have negative correlation with income diversification index, equity and loan which is similar to the findings of Nepali (2017). Similarly, non-interest income, income diversification index, foreign ownership and size have positive correlation with risk adjusted return on equity and have negative correlation with equity and loan. The major conclusion of the study is that non-interest income, equity ratio has significant impact on risk adjusted return on assets. Whereas income diversifications, loan, foreign ownership have insignificant impact on risk adjusted return on assets. Similarly, there is significant impact of income diversification, equity ratio and loan ratio on the risk adjusted return on equity. Similarly, there is insignificant impact of non-interest income, foreign ownership and size of banks on risk adjusted return on equity.

The positive and significant impact of noninterest income on the risk adjusted performance ratios indicates that the Nepalese commercial banks have to focus on generating noninterest income through modern banking activities so as to achieve tradeoff between the risk and return in their performance. The income diversification measurement proxy HHI shows that Nepalese commercial banks are in the process of diversification in their income sources. There is positive impact of diversification on the risk adjusted performance of the Nepalese commercial banks. The banks should focused on modern and innovative banking services are generating non-interest incomes and having better trade-off in their risk and return. The result also shows that the highly levered banks have better risk adjusted performance than other banks which encourages banks to use more of debt in financing assets. The result also finds that loan ratio has negative impact on the risk adjusted performance of the commercial banks. Moreover, the income diversification has positive influence on the risk return trade off in the context of Nepalese commercial banks.

5.2 Conclusion

As the study shows that there is positive and significant impact of income diversification on risk adjusted return on equity but positive and insignificant impact in risk adjusted return on assets, due to low proportion of non-interest income in net operating income of sample banks. Bank have to focus on different innovative financial products in order to raise the non- interest income and have better risk adjusted return. From the findings of this study, the following conclusions are drawn.

1. There is positive correlation of non-interest income, foreign ownership and size on RAROA and negative correlation of HHI, EQUITY, and LOAN on RAROA. Similarly, there is positive correlation of non-interest income, HHI, foreign ownership and size on RAROE and negative correlation of equity and loan on RAROE.

2. There is significant relationship of non-interest income and equity to total assets ratio with risk adjusted return on assets with. Similarly, insignificant relationship with income diversification (HHI), loan to total assets ratio, foreign ownership and size of the bank.

3. There is significant relationship of income diversification (HHI), equity to total assets ratio and loan to total assets ratio of bank with the risk adjusted return on equity. Similarly, there is insignificant relationship with non-interest income foreign ownership and size.

5.3 Implications

As suggested by Markowitz (1992) bank should diversify their income sources to increase the risk adjusted performance. Based on the above findings and conclusion, following recommendations have been forwarded:

Banks should offer various fee, commission and service charge-based banking services as increases the return in banks with the lesser earning volatility. However, the regulators need to have keen concern on the modern business practices of the banks that generate non-interest income more. Since, banking is also a business, customer satisfaction should always be the first concern for the bank.

Recommendation for Further Research:

This study is based on analyzing the impact of income diversifications on the risk adjusted return of the Nepalese commercial banks. There are few researches been conducted on income diversification so, it is very difficult to find out the research related to impact of income diversification on the performance of bank sector wise

However, there are lots of areas which need further study. This study has focused only on impact income diversification on profitability from the prospective of return on assets (ROA) and return on equity (ROE). Further study can be carried out focusing on Agency cost, corporate governance, liquidity, revenue, return on investment (ROI), cash flow etc. as performance measurement variables. Data set for longer period, more sample of financial institutions and banks with non-linear regression models can also be tested to have improved and more comprehensive results.

REFERENCES

Acharya, V., Hasan, I., & Saunders, A. (2004). *Should Banks Be Diversified? Evidence from Individual Bank Loan Portfolio.* Newyork: Stern School of Business.

Allen, F., & Santomero, A. M. (2010). What do financial intermediaries do? *Journal of Banking and Finance,*, 25(2): 271-294.

Al-Tarawneh, A., Khalaf, B. K., & Al-Assarf, G. (2017). Noninterest income and financial performance at Jordanian banks. *International Journal of finance and Research*, 8(1): 166-171.

Amidu, M., & Wolfe, S. (2013). Does bank competition and diversification lead to greater stability? Evidence from emerging markets. *Review of Development Finance.*

Baele, L., Jonghe, R. V., & Vennet, V. (2007). Does the stock market value bank diversification? *Journal of Banking and Finance*, 31(7): 1999–2023.

Barthe, J., Caprio, G., & Levine, R. (2004). Bank regulation and supervision: What works best? *Journal of Financial Intermediation*, 13(2): 205-248.

Berger, P. G., & Ofek, E. (1995). Diversification's Effect on firm value. *Journal of Financial Economics*, 37, 39-65.

Brahmana, R., & Kontesa, M. (2017). Income diversification and bank performance: evidence from malaysian banks. *Economics Bulletin*, 38: 799-809.

Busch, R., & Kick, T. (2009). *Income diversification in the German Banking Industry.* Frankfurt am Main, Germany: Deutsche Bundesbank, Wilhelm-Epstein-Strasse 14, 60431.

Carbo-Valverde, S., & Fernandez, F. R. (2007). The determinants of bank margins in European banking. *Journal of Banking and Finance*, 31(1): 2043–2063.

Chiorazzo, V., Milani, C., & Salvini, F. (2008). Income Diversification and Bank Performance: Evidence from Italian Banks. *Journal of Financial Services and Research*, 33(3), 181-203.

Cybo-Ottone, A., & Murgia, M. (2000). Mergers and shareholders wealth in a European Banking. *Jouranl of Banking and Finance*, 24, 831-859.

Daud, W. M., Salamudin, N. B., & Ahmad, I. B. (2009). Corporate diversification and performance. *International Business Education Journal*, 2(1): 1-18.

Davis, P. E., & Tuori, K. (2000). The changing structure of banks' income - An empirical investigation. *Economics and Finance Working Paper, Brunel University* .

Delpachitra, S., & Lester, L. (2013). Non-interest income: Are Australian banks moving away from their traditional businesses? *Economic Papers*, 32(2): 190-199.

Demsetz, R., & Strahan, P. (1997). Diversification, size, and risk at bank holding companies. *Economic Policy Review*, 1(2): 13-26.

DeYoung, R., & Karin, P. (2001). Product mix and earnings volatility at commercial banks: Evidence from a degree of total leverage model. *Journal of Financial Intermediaton*, 10(1): 54 -84.

DeYoung, R., & Rice, T. (2004). How do bank make money? A variety of business strategies. *Financial Review*, 39(1): 101-127.

DeYoung, R., & Ronald, k. P. (2001). Product mix and earning volatility at commercial banks: Evidence from a degree of total leverage model. *Journal of Financial Intermediation*, 10, 54–84.

DeYoung, R., & Torna, G. (2013). Nontraditional banking activities and bank failures during the financial crisis. *Journal of Financial Intermediation*, 22(3): 397-421.

Drucker, S., & Puri, M. (2009). On loan sales, loan contracting, and lending relationships. *Review of Financial Studies*, 22(7): 2835–2872.

Ekanayake, E., & Wanamalie, H. (2017). Income diversification and risk return trade-off: Evidence from an emerging economy. *Asian Economic and Financial Review*, 7(7): 644-645.

Elas, R., Hackethal, A., & Holzhauser, M. (2010). The anatomy of bank diversification. *Journal of Banking and Finance*, 34(1): 1274-1287.

Estes, K. (2014). Diversification and community bank performance during a financial crisis. *International Journal of Finance and Banking and studies*, 1-40.

Gajurel, D. P., & Pradhan, R. S. (2012). Concentration and competition in Nepalese banking. *Journal of Business, Economics and Finance*, 1(1): 5-16.

Gamra, S. B., & Plihon, D. (2008). *Revenue Diversification in Emerging Market Banks: Implications for Financial Performance.* North, France: University of Paris North.

Goddard, J., Donal, M., & John, W. O. (2008). The diversification and financial performance of U.S. credit unions. *The Journal of Banking and Finance*, 1836-1849.

Gurbuz, A., Yanik, S., & Ayturk, Y. (2013). Income diversification and bank performance: Evidence from Turkish banking sector. *Journal of BRSA Banking and Financial Markets*, 7(1): 9-29.

Hafidiyah, M. N., & Trinugroho, I. (2016). Revenue diversification, performance and bank risk: Evidence from Indonesia. *Journal of Dinamika Manajemen*, 7(2): 139-148.

Hang, H. T., Ha, D. T., & Nhan, D. T. (2017). The impact of income diversification on profitiblty and risk of commericial banks: Cases of vitenam. *International Journal of Applied Business and Economic Research*, 15(15): 123-137.

Huang, L. W., & Chen, Y. K. (2006). Does bank performance benefit from non traditional activities? A case of non-interest incomes in Taiwan commerical banks. *Asian Journal of Management and Humanity Sciences,*, 1(3): 359-378.

Ismail, A., Hanif, R., Choudhary, S., & Ahmad, N. (2014). Income-diversification in banking sector of Pakistan: A'blessing' or 'curse'? *Journal of Commerce*, 7(1): 11-22.

Kattel, I. K. (2014). Evaluating the financial solvency of selected commericial banks of Nepal: An application of bankometer. *Journal of Advanced Academic Research*, 1(1): 1303-1311.

Klein, P., & Saidenberg, M. (2010). Organizational structure and the diversification discount: Evidence from commercial banking. *The Journal of Industrial Economics*, 58(1), 127-155.

Lee, C., Hsieh, M., & Yang , S. (2014). The relationship between revenue diversification and bank performance: Do financialstructures and financial reforms matter? Japan and the World Economy. 29(1): 18-35.

Lepetit, L., Nys, E., Rous, V., & Tarazi, A. (2008). Bank income structure and risk: An empirical analysis of European banks. *Journal of Banking and Finance*, 32(8): 1452-1467.

Li, S. (2003). Future trend and challenges of financial risk management in the digital economy. *Journal Managerial Finance*, 29(5/6): 111-125.

Lozano-Vivas, A., & Pasaiouras, F. (2010). The impact of non-traditional activities on the estimation of bank efficiency: International evidence. *Journal of Banking and Finance*, 34(1): 1436–1449.

Markowitz, H. (1952). Potfolio selection. *Journal of Finance.*, 7(1): 77-91.

Merciea, S., Schaeeck, K., & Wolfe, S. (2007). Small European banks: Benefits from diversification? *Journal of Banking and Finance*, 31(1): 1975-1998.

Meslier, C., Tacneng, R., & Amine, T. (2014). Is bank income diversification beneficial? Evidence from an emerging economy. *Journal of International Financial Markets, Institutions and Money*, 31(3): 97-126.

Mester, L. (1992). Traditional and non-traditional banking: An information-theoretic approach. *Journal of Banking and Finance*, 16(3): 545-566.

Mndene, R. (2015). Impact of non-interest income on banking performance in Tanzania. International Journal of Economics,. *International Journal of Economics commerce and management*, 3(5): 75-92.

Muneer, S., Jahanzeb, A., & Suwandi, S. (2016). Income diversification and performance: A comparision of commercial and Islamic banks of Pakistan. *Abasyn Journal of Social Sciences*, 1(1): 471-485.

Nepali, S. (2017). Income Diversification and Bank Risk-Return Trade-off in the Nepalese commericial Banks. *Asian Economic and Financial Review*, 8(2): 279-293.

Nesrine, A., & Adel, B. (2014). The impact of revenue diversification on bank profitability and risk: evidence from MENA banking industry. *Macroeconomics and Finance in Emerging Market Economies*, 12(1): 36-70.

Nguyen, M., Skully, M., & Perera, S. (2012). Bank market power and revenue diversification: Evidence from selected ASEAN countries. *Journal of Asian Economics*, 23(1): 688-700.

Panta, S. B., & Bedari, D. P. (2015). Cost efficiency of Nepali commericial Banks in the context of regulatory changes. *NRB Economic Review,*, 110(2): 217-248.

Pennathur, A. K., Subrahmanyam, V., & Vishwasrao, S. (2012). Income diversification and risk: Does ownership matter? An empirical examination of Indian banks. *Journal of Banking and Finance*, 3(6): 2203-2215.

Rajbahak, S. S., Shrestha, S. K., Rijal, S., & Shrestha, S. (2016). Banking structure and financial stability: A case in Nepal. *Nepalese Journal Of Finance,*, 3(1): 41-57.

Reichert, A. K., Wall, L. D., & Liang, H. (2008). The integration of banking and commerce: Part II-risk and return using efficient portfolio analysis. *Economic Review, Federal Reserve Bank of Atlanta*, 93(1): 1-16.

Rogers, K., & Sinkey, J. F. (1999). An analysis of non-traditional activities in U.S. commericial banks. *Review of Financial Economics*, 8(1): 25-39.

Sanya, S., & Wolfe, S. (2011). Can banks in emerging economies benefit from revenue diversification? *Journal of Financial Services Research*, 40(1): 79-101.

Saunders, A. (1994). Banking and Commerce: An overview of the public policy issues. *Journal of Banking and Finance*, 18, 231-254.

Saunders, A., & Walters, I. (1994). *Universal banking in the United States: What could we gain? What could we lose?* New York: Oxford University press.

Smith, R., Staikouras, C., & Wood, G. (2003). *Non-interest Income and Total Income Stability.* London: Bank of England,Working Paper No. 198.

Stiroh, K. (2004). Diversification and Banking: Is Noninterest Income the Answer? *Journal of Money, Credit, and Banking*, 36(5) 853–882.

Stiroh, K., & Rumble, A. (2006). The dark side of diversification: The case of US financial holding companies. *Journal of Banking and Finance*, 30(8): 2131-2161.

Swada, M. (2013). How does the stock market value bank diversification? Empirical evidence from Japanese banks. *Pacific-Basin Finance Journal*, 25(1): 40-61.

Tarawneh, A., & Khalaf, A. (2017). Noninterest income and financial performance at Jordanian banks. *International Journal of Financial Research*, 166-171.

Teimet, P. R., Ochieng, D. O., & Away, S. (2011). Income source diversification and financial performance of commercial banks in Kenya. *International Journal of Business and Public Management*, 1(1): 26-35.

Templeton, W., & Serveriens, J. T. (1992). The effect of non-bank diversification on bank holding companies. *Quarterly Journal of Business and Economics*, 31(4): 3-16.

Vander Vennet, R. (2002). Cost and Profit Efficency of Financial conglomerates and Universal Banks in Europe . *Journal of Money, Credit and Banking*, 34, 254-282.

Vinh, V. X., & Mai, T. P. (2016). Profitability and risk in relation to income diversification of Vitenamese commericial banking system. *Journal of Economic and Development*, 23(2): 61-76.

Winton, A. (1999). *Don't Put All Your Eggs in One Basket? Diversification and Specialization in Lending.* Avenue South, Minneapolis,: Finance Department University of Minnesota.

APPENDIX

Researcher's Calculation-1: Return on Assets ROA=Net Income/ Average Assets

YEAR	NABIL	NIBL	SCBNL	HBL	NSBI	NBBL	EBL	BOK	NCC	NICA
2069/70	0.030	0.027	0.027	0.017	0.012	0.034	0.024	0.019	0.016	0.017
2070/71	0.028	0.023	0.027	0.016	0.014	0.027	0.022	0.014	0.014	0.016
2071/72	0.020	0.019	0.022	0.014	0.017	0.030	0.018	0.008	0.014	0.013
2072/73	0.023	0.020	0.019	0.020	0.019	0.037	0.016	0.012	0.020	0.015
2073/74	0.025	0.022	0.019	0.021	0.017	0.032	0.017	0.015	0.013	0.016
2074/75	0.025	0.021	0.026	0.021	0.018	0.026	0.019	0.017	0.014	0.009
2075/76	0.024	0.018	0.027	0.022	0.020	0.021	0.019	0.019	0.018	0.015
S.D	0.003	0.003	0.004	0.003	0.003	0.005	0.003	0.004	0.003	0.003
YEAR	MBL	KUMARI	LAXMI	SBL	ADBNL	GLOBAL	CITIZEN	PRIME	SUNRISE	NMB
2069/70	0.006	0.010	0.015	0.015	0.026	0.015	0.026	0.016	0.013	0.024
2070/71	0.012	0.010	0.014	0.013	0.015	0.019	0.018	0.018	0.013	0.023
2071/72	0.013	0.010	0.009	0.015	0.022	0.015	0.000	0.018	0.013	0.022
2072/73	0.015	0.017	0.013	0.018	0.020	0.017	0.022	0.021	0.019	0.030
2073/74	0.019	0.012	0.013	0.013	0.020	0.019	0.019	0.021	0.017	0.028
2074/75	0.015	0.012	0.015	0.016	0.024	0.017	0.019	0.021	0.017	0.019
2075/76	0.017	0.014	0.017	0.017	0.025	0.020	0.017	0.023	0.019	0.020
S.D	0.004	0.003	0.002	0.002	0.004	0.002	0.008	0.003	0.003	0.004

Source: Banking and Financial Statistics Report of Nepal Rastra Bank

Researcher's Calculation-2 Return on Assets (ROE) = Net Income/Average Equity)

YEAR	NABIL	NIBL	SCBNL	HBL	NSBI	NBBL	EBL	BOK	NCC	NICA
2069/70	0.445	0.355	0.312	0.237	0.258	0.315	0.404	0.240	0.202	0.200
2070/71	0.395	0.295	0.315	0.222	0.263	0.240	0.345	0.166	0.176	0.189
2071/72	0.305	0.262	0.270	0.198	0.255	0.307	0.304	0.101	0.164	0.159
2072/73	0.360	0.220	0.227	0.296	0.256	0.395	0.280	0.142	0.252	0.190
2073/74	0.293	0.197	0.166	0.267	0.209	0.258	0.256	0.174	0.160	0.195
2074/75	0.280	0.195	0.188	0.232	0.190	0.176	0.250	0.166	0.170	0.128
2075/76	0.262	0.167	0.201	0.229	0.203	0.152	0.230	0.171	0.175	0.277
S.D	0.067	0.066	0.060	0.032	0.031	0.084	0.061	0.042	0.032	0.046
YEAR	MBL	KUMARI	LAXMI	SBL	ADBNL	GLOBAL	CITIZEN	PRIME	SUNRISE	NMB
2069/70	0.060	0.127	0.201	1.544	0.177	0.188	0.278	0.189	0.149	0.245
2070/71	0.170	0.128	0.188	1.012	0.110	0.230	0.241	0.230	0.171	0.274
2071/72	0.206	0.125	0.124	0.270	0.181	0.173	0.000	0.239	0.176	0.299
2072/73	0.226	0.236	0.156	0.307	0.177	0.203	0.271	0.284	0.236	0.411
2073/74	0.208	0.122	0.127	0.175	0.155	0.233	0.193	0.241	0.168	0.310
2074/75	0.143	0.114	0.128	0.179	0.179	0.201	0.160	0.217	0.149	0.153
2075/76	0.183	0.135	0.153	0.196	0.182	0.225	0.146	0.229	0.168	0.156
S.D.	0.056	0.042	0.031	0.539	0.026	0.023	0.096	0.029	0.029	0.091

Source: Banking and Financial Statistics Report of Nepal Rastra Bank

Banking and Financial Statistics Report -3

Non-interest Income of Banks (in Rs Million)

Year	NABIL	NIBL	SCBNL	HBL	NSBI	NBBL	EBL	BOK	NCC	NICA
2069/70	1259.40	817.90	811.30	857.10	574.90	304.30	374.00	348.60	87.00	308.70
2070/71	1478.30	1094.10	977.70	1057.90	652.80	403.20	331.80	377.40	121.50	251.60
2071/72	1462.70	1132.40	975.20	1206.20	773.60	512.70	400.00	431.70	163.20	248.60
2072/73	1785.29	1323.71	1017.84	1219.34	917.65	723.22	423.73	453.93	221.80	334.08
2073/74	1375.85	1753.89	1094.00	1350.43	1163.31	985.97	451.15	567.98	291.70	361.75
2074/75	1766.43	1895.21	1317.24	1446.62	1243.23	941.26	528.39	737.07	327.86	417.39
2075/76	1589.17	2306.47	1686.34	1552.61	1347.55	1270.00	1465.35	768.75	728.43	774.36
Year	MBL	KUMARI	LAXMI	SBL	ADBNL	GLOBAL	CITIZEN	PRIME	SUNRISE	NMB
2069/70	116.20	232.50	354.10	468.50	327.80	596.10	1401.70	72.70	149.00	119.00
2070/71	225.10	278.40	445.00	587.40	575.30	670.20	138.60	106.30	169.60	202.90
2071/72	363.90	252.60	511.60	596.80	556.60	869.80	194.50	401.90	202.10	249.50
2072/73	357.12	284.22	561.98	683.01	586.02	1037.69	385.00	541.39	278.60	407.58
2073/74	425.44	331.04	853.06	798.44	957.28	1168.43	371.91	926.76	367.62	622.75
2074/75	483.00	523.54	766.08	1106.29	630.58	1269.37	420.59	1107.89	526.41	850.13
2075/76	1134.14	676.56	851.86	1454.32	816.30	1681.34	938.13	896.03	718.66	1042.75

Source: Banking and Financial Statistics Report of Nepal Rastra Bank

Researcher's Calculation-4

As we know, HHI= (NETII/NOI)^2 + (NONII/NOI)^2

(NETII/NOI)^2

Year	NABIL	NIBL	SCBNL	HBL	NSBI	NBBL	EBL	BOK	NCC	NICA
2069/70	0.070	0.043	0.088	0.065	0.068	0.094	0.014	0.049	0.010	0.022
2070/71	0.079	0.073	0.107	0.089	0.074	0.102	0.010	0.056	0.018	0.015
2071/72	0.082	0.076	0.114	0.097	0.075	0.102	0.015	0.057	0.029	0.019
2072/73	0.082	0.064	0.125	0.069	0.076	0.109	0.013	0.052	0.025	0.021
2073/74	0.041	0.072	0.112	0.070	0.081	0.154	0.012	0.033	0.018	0.016
2074/75	0.047	0.062	0.085	0.065	0.055	0.109	0.010	0.039	0.028	0.009
2075/76	0.032	0.074	0.109	0.055	0.049	0.092	0.043	0.029	0.036	0.010
Year	MBL	KUMARI	LAXMI	SBL	ADBNL	GLOBAL	CITIZEN	PRIME	SUNRISE	NMB
2069/70	0.013	0.037	0.078	0.083	0.004	0.089	0.331	0.004	0.017	0.019
2070/71	0.029	0.064	0.123	0.094	0.012	0.077	0.013	0.008	0.018	0.042
2071/72	0.046	0.048	0.121	0.090	0.011	0.076	0.018	0.050	0.024	0.042
2072/73	0.026	0.038	0.090	0.062	0.007	0.070	0.037	0.065	0.024	0.028
2073/74	0.024	0.043	0.119	0.065	0.014	0.061	0.031	0.107	0.022	0.038
2074/75	0.024	0.043	0.063	0.062	0.007	0.062	0.028	0.091	0.026	0.049
2075/76	0.059	0.034	0.048	0.056	0.010	0.060	0.062	0.040	0.028	0.039

(NONII/NOI)^2

Year	NABIL	NIBL	SCBNL	HBL	NSBI	NBBL	EBL	BOK	NCC	NICA
2069/70	0.611	0.670	0.583	0.620	0.614	0.574	0.790	0.656	0.823	0.747
2070/71	0.597	0.606	0.560	0.582	0.604	0.565	0.817	0.639	0.767	0.785
2071/72	0.591	0.600	0.553	0.572	0.602	0.565	0.786	0.637	0.717	0.765
2072/73	0.591	0.623	0.543	0.612	0.601	0.557	0.795	0.649	0.734	0.753
2073/74	0.678	0.607	0.555	0.611	0.592	0.523	0.808	0.703	0.770	0.782
2074/75	0.661	0.626	0.587	0.620	0.641	0.558	0.821	0.685	0.720	0.826
2075/76	0.707	0.603	0.558	0.640	0.656	0.577	0.672	0.719	0.691	0.820
Year	MBL	KUMARI	LAXMI	SBL	ADBNL	GLOBAL	CITIZEN	PRIME	SUNRISE	NMB
2069/70	0.800	0.690	0.597	0.589	0.876	0.582	0.511	0.878	0.772	0.764
2070/71	0.718	0.622	0.544	0.575	0.802	0.600	0.797	0.834	0.766	0.675
2071/72	0.664	0.657	0.546	0.580	0.814	0.600	0.769	0.653	0.738	0.674
2072/73	0.729	0.685	0.579	0.626	0.843	0.611	0.690	0.621	0.737	0.720
2073/74	0.736	0.672	0.548	0.621	0.791	0.628	0.711	0.560	0.747	0.686
2074/75	0.738	0.671	0.624	0.627	0.846	0.626	0.721	0.579	0.728	0.654
2075/76	0.632	0.701	0.658	0.638	0.820	0.630	0.625	0.681	0.720	0.684

Source: Banking and Financial Statistics Report of Nepal Rastra Bank

Banking and Financial Statistics Report -5

Total Equity of Banks (in Rs Million)

Year	NABIL	NIBL	SCBNL	HBL	NSBI	NBBL	EBL	BOK	NCC	NICA
2069/70	5464.70	6051.80	4141.20	4632.00	3197.50	2954.00	4165.70	2700.00	1922.70	4215.90
2070/71	6690.30	7022.50	4598.80	5299.70	3799.00	3573.40	4819.50	3548.60	2262.00	4388.20
2071/72	7642.10	7928.00	5090.40	6083.40	4623.90	4110.20	5448.80	3548.60	2600.40	4873.00
2072/73	9487.21	15260.53	5950.78	6896.00	5645.91	4892.22	6890.38	7126.78	2930.11	6379.14
2073/74	15215.85	17982.59	10764.78	9520.08	8936.84	9511.88	8514.09	7779.23	6198.60	8682.11
2074/75	14060.76	18684.15	11823.23	11612.06	10826.58	10437.87	11863.75	10570.77	6472.58	10074.38
2075/76	18759.26	22295.43	12523.50	13236.20	11835.86	10828.98	14593.43	12068.80	10992.93	11977.51
Year	MBL	KUMARI	LAXMI	SBL	ADBNL	GLOBAL	CITIZEN	PRIME	SUNRISE	NMB
2069/70	2648.10	2377.10	2300.80	-964.20	13135.10	3406.10	2281.80	2590.90	2151.20	2263.70
2070/71	2796.70	2656.70	2720.70	2502.20	14222.90	5316.40	2379.70	3089.90	2451.10	2424.10
2071/72	3235.70	2966.60	3673.70	3026.40	12958.80	6362.90	3770.40	3616.90	2905.00	2813.00
2072/73	4484.18	3347.32	4972.34	5082.66	16182.48	7323.49	4282.69	4332.78	5229.58	5914.51
2073/74	7814.39	7537.30	8652.69	8434.54	19631.76	10141.99	8240.41	7968.59	8163.55	9219.83
2074/75	9033.73	9324.21	9581.59	10822.84	21782.82	11304.82	9392.88	9434.21	9664.87	14488.42
2075/76	9551.30	10389.62	11061.31	12779.33	24467.06	13559.60	10973.72	11214.07	10616.79	15145.74

Source: Banking and Financial Statistics Report of Nepal Rastra Bank

Banking and Financial Statistics Report -6

Total Loans of Banks (in Rs Million)

Year	NABIL	NIBL	SCBNL	HBL	NSBI	NBBL	EBL	BOK	NCC	NICA
2069/70	47522.90	47369.20	23125.70	39648.70	29147.30	12920.30	44008.40	21805.70	15919.50	32240.90
2070/71	55829.60	53092.90	26317.00	44399.90	35061.10	18825.40	47955.70	26974.10	17845.60	37300.70
2071/72	66995.80	67033.40	27986.40	53124.40	39666.70	25439.80	54884.40	31795.30	21267.60	42041.70
2072/73	77561.69	86742.07	31696.93	66868.67	46940.33	32112.83	68828.41	58629.64	24788.55	58654.27
2073/74	91422.45	104492.27	39729.73	75397.44	62132.78	36804.66	78165.33	61191.49	47974.29	72034.70
2074/75	112266.77	121432.14	46689.07	86780.57	75470.09	42161.04	93890.30	69463.29	53865.72	120666.12
2075/76	132482.02	130792.14	55481.37	98961.01	88852.45	55401.33	111787.39	75966.21	64541.98	151376.71
Year	MBL	KUMARI	LAXMI	SBL	ADBNL	GLOBAL	CITIZEN	PRIME	SUNRISE	NMB
2069/70	21634.20	20083.20	19143.10	37844.10	54959.30	26831.90	17683.80	21735.90	18334.90	15879.70
2070/71	29219.90	22797.10	21865.40	27576.70	62454.90	42554.90	23106.00	27814.60	20846.30	20134.80
2071/72	33769.50	27023.90	29414.20	36382.40	72215.50	49320.50	29094.70	33077.10	27348.00	26819.20
2072/73	43784.46	30078.04	38840.65	55736.70	83349.44	60182.72	40439.21	40938.71	43683.36	53587.99
2073/74	50852.62	45194.05	50660.67	66783.71	92715.81	79301.18	47931.78	58262.49	51656.48	61489.07
2074/75	64365.67	62740.97	61964.45	86131.20	100161.97	93373.42	57843.86	70600.73	60553.74	75637.92
2075/76	77672.67	76189.61	77163.13	108546.24	111750.22	114060.45	64961.28	76244.38	69729.79	91886.95

Source: Banking and Financial Statistics Report of Nepal Rastra Bank

Banking and Financial Statistics Report -7

Total Assets of Banks (in Rs Million)

Year	NABIL	NIBL	SCBNL	HBL	NSBI	NBBL	EBL	BOK	NCC	NICA
2069/70	78260.00	77999.00	47024.00	63098.10	66326.60	24718.70	66677.60	33575.30	26548.60	48509.00
2070/71	93760.30	91986.70	54789.70	75397.30	62762.30	34258.20	71454.20	40116.40	26886.30	53460.70
2071/72	124849.50	111042.90	66289.10	85853.70	61095.60	43648.70	100034.20	47082.50	31975.00	62608.50
2072/73	139307.54	137823.47	66210.81	102062.74	80652.02	51729.53	114987.34	83122.51	36777.44	82547.37
2073/74	154079.55	162896.60	79083.46	109520.81	102302.76	63684.06	116377.15	86875.56	73115.31	101193.61
2074/75	169647.29	182586.08	84788.15	118728.52	105456.93	69175.17	146044.93	94485.26	78584.40	172928.37
2075/76	194983.14	202998.87	95017.71	135906.55	121885.91	82533.47	178195.58	104487.80	91382.35	222865.63
Year	MBL	KUMARI	LAXMI	SBL	ADBNL	GLOBAL	CITIZEN	PRIME	SUNRISE	NMB
2069/70	31553.40	30462.10	31290.80	77171.20	92584.30	41876.20	27238.40	33575.40	27464.20	25829.90
2070/71	42756.10	33637.90	37547.90	43549.50	108375.50	63500.70	34565.30	39966.40	31532.90	30824.30
2071/72	51408.20	40070.20	48922.10	54028.40	119614.30	71147.70	42701.20	48085.40	39420.10	42062.70
2072/73	61535.70	45160.89	58014.65	80826.44	132115.62	90457.77	57096.88	56977.26	61061.57	76808.73
2073/74	73948.01	64833.05	73467.25	94791.52	149603.67	120463.08	67300.28	81192.40	74062.80	89188.22
2074/75	90933.45	89735.92	84341.14	124748.30	156505.30	128799.24	80881.08	99611.32	84576.69	106155.26
2075/76	112771.44	103235.85	105661.62	154207.87	174222.34	150486.08	92761.97	107889.21	97636.12	129362.91

Source: Banking and Financial Statistics Report of Nepal Rastra Bank

Researcher's Calculation-8

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.476[a]	0.227	0.192	1.64750
a. Predictors: (Constant), SIZE, HHI, EQUITY, FORGN,				

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	105.830	6	17.638	6.498	.000[b]
	Residual	360.995	133	2.714		
	Total	466.825	139			
a. Dependent Variable: RAROA						
b. Predictors: (Constant), SIZE, HHI, EQUITY, FORGN, LOAN, NONII						

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1.254	4.293		0.292	0.771
	NONII	1.442	0.641	0.368	2.249	0.026
	HHI	0.048	2.468	0.002	0.020	0.984
	EQUITY	-0.166	0.062	-0.215	-2.683	0.008
	LOAN	-0.002	0.026	-0.008	-0.091	0.928
	FORGN	0.163	0.349	0.042	0.466	0.642
	SIZE	0.454	0.481	0.129	0.944	0.347
a. Dependent Variable: RAROA						

Researcher's Calculation-9

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.341[a]	0.117	0.089	2.07701
a. Predictors: (Constant), SIZE, HHI, EQUITY, FORGN,				

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	109.854	6	18.309	4.244	.000[b]
	Residual	832.593	193	4.314		
	Total	942.448	199			
a. Dependent Variable: RAROE						
b. Predictors: (Constant), SIZE, HHI, EQUITY, FORGN, LOAN, NONII						

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	4.442	2.217		2.003	0.047
	NONII	0.941	0.783	0.198	1.201	0.231
	HHI	6.170	2.632	0.254	2.344	0.020
	EQUITY	-0.143	0.067	-0.156	-2.150	0.033
	LOAN	-0.074	0.025	-0.244	-2.971	0.003
	FORGN	-0.462	0.381	-0.101	-1.213	0.227
	SIZE	0.006	0.007	0.121	0.858	0.392
a. Dependent Variable: RAROE						